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WESTERN AUSTRALIA

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REPORT

OF THE

PUBLIC HEALTH DEPARTMENT

FOR THE YEAR

1946

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Report of the Public Health Department.

The Hon. The Minister for Health.

I have the honour to submit herewith the report of the Department of Public Health for the year 1946.

I assumed duty as Commissioner of Public Health on 4th March, 1946, and this being the first annual report covering a period since my appointment, I have taken the opportunity to embody in it comments and criticisms which would not ordinarily be considered apposite.

ADMINISTRATION.

Commissioner.

A great deal of the time of the Commissioner is devoted to trivialities of routine which prevent him giving to the fundamentals of epidemiology and disease control, that attention without which enlightened progress towards improvement is impossible.

In the past it appears that much of this routine has been performed by lay officers of greater or less seniority, a highly undesirable expedient since for proper judgment and sound decision upon most administrative problems an epidemiological training and medical outlook is necessary.

If the best results are to be obtained professional assistance to the Commissioner will be necessary.

Local Authorities.

Administration of the Health Act by Local Authorities leaves much to be desired.

Admitting that difficulties associated with the currency of the War and subsequent re-adjustment may with some plausibility be advanced in extenuation of inaction or neglect in certain fields, there remain a number of inexcusable defects in Local Authority administration.

These appear to derive from :—

(*a*) Failure to recognise responsibilities under the Act.

(*b*) Inability to place the health function in its proper priority in relation to other administrative functions.

(*c*) Lack of knowledge of the fundamental principles of health administration.

(*d*) A tendency to defer to a Central authority, whether State or Commonwealth, embarrassing functions and irksome obligations which Parliament intended, when the Act was framed, should remain with the Local Board of Health.

Conspicuous amongst the shortcomings of defaulting Boards are :—

(*a*) Dependence upon the Department of Public Health for those necessary routine health inspections without which no Local Board can inform itself as to the epidemiological situation obtaining in its area at any time.

One municipality and 75 of 114 Local Health Authorities (66 per cent.) are unprovided with qualified health inspectors.

(*b*) Failure through apathy, self-interest or other cause to take action towards the correction of defects to which Inspectors direct attention.

(*c*) Failure to provide themselves with powers available in model Health By-laws drafted for their guidance by the Central authority.

The basic causes of these shortcomings appear to be inherent in a psychological attitude which has developed in Local Authorities over the years under the influence of a number of more or less related administrative and economic factors.

(*a*) Vesting of the obligations and functions of Health Authority upon already constituted Road Boards, has imposed a novel role upon bodies of men who, in many cases, are unaware of its import and significance. Lacking expert guidance and advice they have subsequently had no stimulus towards or opportunity for learning to understand it. The members of many Road Boards continue under the impression that health administration begins and ends with the institution of a sanitary service and the collection of a rate to pay for it.

Many seem incapable of realising that several phases of health administration must be undertaken in rural areas as well as in townships, and that country dwellers enjoying the security of access to and use of a healthy township may reasonably be expected to bear a proportion of the costs involved in attaining it.

(*b*) Sixty-six per cent. of local boards of health are without fully qualified health inspectors.

Unaware of the aetiology and epidemiology of disease and by themselves, in the interest of economy, deliberately deprived of the advice of competent officers, many Boards will resist requests by the Commissioner for improved methods of health inspection citing in support the low figure for infectious disease notifications. They fail to realise that immunity from an epidemic is primarily determined by the exclusion of a source of infection. No matter how bad sanitary conditions may be in the area and no matter how suitable they may be for the wide dissemination, for example, of Enteric Fever or Dysentery, these diseases will not appear in the community until and unless a carrier is introduced from elsewhere. Immunity, therefore, of many areas is determined, not so much by existing conditions as by the elimination or control of infection in other parts of the State, achieved at the expense of ratepayers elsewhere.

The function of the Health Authority is primarily to prevent disease and to that end it must remove conditions favourable to the dissemination of disease before infection is introduced and not defer action until epidemic conditions demand drastic and possibly panic measures which can only be implemented too late to avoid a substantial loss of life. Furthermore, such authorities do not realise that much of the illhealth and some of the mortality which they accept as normal and beyond the power of improved sanitation to reduce are, in fact, due to prolonged or casual exposure to devitalizing and predisposing conditions and infections which application of the Health Act and its By-laws and Regulations would remove.

(*c*) However suitable as administrative sub-divisions for Road Board purposes, Road Board boundaries are so delimited as in many cases to be wholly unsuitable as Health area boundaries.

On the one hand a closely settled area with common administrative problems under the Health Act may overlap from a municipality into a contiguous Road Board area. Alternatively a country town may be predominantly in one Road Board area and partially in another. Lack of co-operation between the contiguous Local Governing Authorities or resistance on the part of the less urbanised area to the measures for uniformity proposed by its neighbour in the interests of the marginal civic population, lead to friction, obstruction and the defeat of most attempts at improved control.

On the other hand the less pecunious neighbour, determined to retain a valued rateable area, will often bitterly resent and obstruct all attempts to transfer such portions of a town as lie within its own boundaries to the Local Authority controlling the major part of the urban area.

(*d*) Many of the Road Board Districts although covering very extensive areas are very sparsely populated, great parts of some being quite uninhabited. The ratio of population to area may be so low as to make the costs of local administration so high that even a rate at the maximum permitted by the Health Act would yield insufficient revenue for health purposes.

The Local Authority is unable to find funds to meet the salaries of a Medical Officer of Health and a Health Inspector to provide it with the information and advice without which it cannot pretend to function efficiently. The health rate collected in such areas being inadequate for this purpose, its revenue remains largely unexpended and there has developed a tendency to use it for the purpose of off-setting general administrative costs by devoting it to the payment of salaries and office expenses associated with Road Board administration generally. In effect, therefore, whilst ratepayers are in fact contributing substantially for purposes of health administration, the Board can, with apparent justice, claim that it is financially incapable of meeting the costs involved in implementing measures of health control.

(*e*) The tendency to centralise in the Department of Public Health, the direction and control of infant health, school health, tuberculosis control, provision for the aged and infirm, and the like, has engendered in Local Health Authorities the concept that these are wholly beyond the field of local administration. However desirable it may be to centralise these activities in the interests of uniformity and efficiency, the exclusion of the Local Health Authority from active participation has been an unfortunate development threatening the successful conduct of these phases of health administration.

(*f*) Education of the public in the principles of hygiene has been neglected. This must be inevitable where the Local Authority itself is uninformed and where there is no technical adviser to impart the fundamentals of knowledge by precept or by coercion. Responsibility in this regard too, lies heavily upon Government Departments whose institutions set an example of tolerated neglect constantly before the eyes of the uninformed public. Sanitary conditions in hospitals, on railway premises, in conveniences provided by the Gardens Board, and in particular at schools, are such as not only to inculcate in the public a misconception of hygienic values, but also to embarrass the enlightened Health Authority in its efforts to correct similar nuisances on the premises of private individuals.

Revision of the boundaries of Local Health Authority areas cannot longer be deferred if the provisions of the Health Act are to be applied with the maximum measure of success throughout the State. In order to provide for the adequate inspection of the less populated and less opulent areas, these should be grouped with the more populous and wealthy, Local Health Authorities being replaced by regional health authorities on which each is equally represented.

Health Inspectors.

The value of health inspection by Local Authority Inspectors is apt to be impaired by a reluctance to offend individuals of strong personality on their Boards. Should an Inspector yield to this reluctance, the abandonment of strict standards which this submission involves, must inevitably develop an ever increasing tolerance of unsatisfactory conditions.

The future of Local Authority Health Inspectors is by no means assured. Provision for refresher courses of study, improvement of status, security of tenure, superannuation and the like which would be available in the Public Service are, in great measure, denied them as employees of smaller Health Authorities.

In order to free Inspectors from their dependence upon the good will of Local Boards, to improve security and to furnish them with scope for technical advancement, it would probably be preferable to absorb them into the Department of Public Health as members of the Public Service seconding them to service with Regional Boards of Health.

SANITATION.

In only 50 per cent. of municipalities and 38 per cent. of Road Board areas, is an adequate service provided for the disposal of household wastes. In the unserved areas, household wastes are buried by the householder or discarded on the ground forming ideal foci for fly breeding. Local Authority garbage tips are universally open to this criticism.

The conservancy system is the principal means of nightsoil disposal in all extra-metropolitan Road Board areas and in 60 per cent. of municipalities. For the most part, privies are not of proper construction, are not flyproof, and do not facilitate removal of pans without soiling. Vehicles in which night soil is removed are commonly unsuitable. The areas in which nightsoil is disposed after removal, are not properly equipped and burial is not effective. Adequate provision for the washing, steaming and tarring of pans with safe disposal of the washings exists nowhere and in most areas this essential preparation of the pan is but cursorily attended. The disposal of the nightsoil itself is usually into open trenches which are not properly drained and which cannot adequately be covered.

Defects in the provision of privies are not confined to private premises. Conspicuous amongst those which do not conform either to Local By-laws or to the first principles of Sanitation, are those of the Railway Commissioner, the Parks and Gardens Board, the Education Department, Public Hospitals, and Local Road Boards themselves.

At 91 public schools the duty of nightsoil disposal is imposed upon the school teacher or the school children.

FOOD.

Two meetings of the Food and Drugs Standards Advisory Committee were held during the year and all members were present at each meeting.

On the advice of the Committee, regulations were amended to provide for :—

(*a*) Use of Methyl Violet in the drip trays of hotel bars.

(*b*) Two methods of milk pasteurisation.

(*c*) Labelling of preparations containing D.D.T.

During the year 125 samples of food and drugs were submitted to the Government Analyst to be examined for compliance with the Food and Drug Regulations. Of these, 24 per cent. failed to comply with the Regulations. Forty-two samples were submitted to the Government Bacteriologist for examination and 21·4 per cent. failed to comply with the requirements of the Regulations.

Meat.

Details of meat inspection are given in Appendix V. The grand total of all animals slaughtered at abattoirs under Government supervision was 848,995, compared to 827,847 for the year 1945.

The illegal slaughter of cattle for sale on the black market occasioned the Department a great deal of concern during the year, involving as it must the sale of uninspected meat to the public. Action by officers of this Department was of necessity limited to the detection of unbranded meat on the premises of vendors.

The illicit slaughter of horses for sale as horse flesh also occasioned concern during the year, as there is good reason to believe that a proportion of the horse flesh so slaughtered is sold for human consumption in the metropolitan area.

It would appear that the only effective remedy for these two practices is more strict enforcement of the Abattoirs Act by the Controller of Abattoirs.

It might be expected that an argument for socialisation of abattoirs, if of no other industry, would be that this noxious trade could, under Government control, be conducted on the highest level of hygienic efficiency.

Whatever the other virtues of socialised management, they do not include a strict or even a token compliance with the requirements of the health authority in the matter of the hygienic disposal of wastes. On the contrary, as in other fields of public administration, the controlling authorities of State Abattoirs make free use of the immunity from regulations conferred on them as instrumentalities of the Crown to ignore the representations of local health authorities and the central health authority.

Milk.

Milk as a protective food cannot be recommended with confidence or consumed with security in Western Australia.

Much of the milk sold in the metropolitan area is analytically of sub-standard quality whilst the degree of organic and inorganic pollution permitted by vendors, even in what purports to be pasteurised milk, is surprising.

Efforts by Health Inspectors, whether State or Local Authority, towards improving the milk supply of the metropolitan area are, at present, necessarily limited to captious and harassing recurrent prosecutions of vendors.

Improvement of the metropolitan milk supply to a standard acceptable to the Department would involve :—

(*a*) Improvement of the quality of herds.

(*b*) Improvement of handling methods.

(*c*) Pasteurisation and bottling.

These requirements involve action by Departments other than the Department of Public Health, authority in such matters having been placed by Parliament under the jurisdiction of the Milk Board. The responsibility resting upon those now charged with the supervision of the metropolitan milk supply is very great, involving as it does the lives and health of a large number of young people.

It is to be regretted, therefore, that this responsibility is now vested in an authority which by its very constitution must be more concerned with the economics of animal husbandry and of milk marketing rather than with the welfare of the consumer.

INFECTIOUS DISEASES.

Notifications of infectious disease must unfortunately be regarded as incomplete and inaccurate. Definite evidence was obtained by the Department during the year that medical practitioners :—

(*a*) Neglect to notify certain infectious diseases.

(*b*) Defer notification pending certainty of diagnosis and subsequently omit to notify.

(*c*) Notify on provisional diagnosis subsequently changed without notice to the Commissioner.

(*d*) Notify on suspicion on clinical grounds cases subsequently unconfirmed by laboratory tests.

An effort has been made to correct this situation by the following means :—

(*a*) Circularising medical practitioners reminding them of their responsibilities under the Act to notify immediately upon reasonable suspicion under penalty of prosecution.

(*b*) Enlisting the co-operation of pathological laboratories to notify the Department of cases of infectious disease proved by laboratory tests.

Some indication of the extent to which the figures may mislead is given by the Department's experience in the notification of Murine Typhus during 1946.

Notifications received from general practitioners totalled 72. Of these only 37 were submitted for serological examination in the Public Health Laboratory. There is no public health laboratory record of the remaining 35 cases notified, but these may have been serologically confirmed by bacteriologists in private practice.

On the other hand the total number of cases from which specimens were examined serologically in the Public Health Laboratory with positive or pseudo-positive results, was 100. Positive results, therefore, were obtained from 63 cases who were not subsequently notified by the medical profession. It must be assumed that the total number of cases, excluding those not diagnosed, must have been not less than 135, and the possible error in the notified total approximates 90 per cent.

Murine Typhus.

A readily communicable disease occasioning a probable morbidity of six per cent. is exceeded only in incidence in Western Australia by Tuberculosis and Diphtheria. With the exception of Tuberculosis it is the most important notifiable disease at present prevalent amongst adults. It is definitely a filth disease and as such is far too complacently regarded in this State.

It is instructive to note that the City of Sydney with a population some five times that of Perth, recorded only one case of Murine Typhus during the same period.

Diphtheria.

There was an appreciable decline in the prevalence of Diphtheria during the year, cases totalling 380 compared to 425 during 1945.

Free immunisation clinics were conducted by 108 Local Authorities (86 in 1945) and the number of children reported to have received the complete course was 8,453 (8,396 in 1945).

Appendix VII. shows the incidence and case mortality of Diphtheria since the introduction of mass immunisation. It reveals that there has been of recent years little real progress in the elimination of this infectious disease and in the reduction of its mortality in Western Australia. The figures for 1946 represent a morbidity of 77 and a mortality of 2·2 per hundred thousand of the population. These are to be compared to the pre-war rates for Ontario (Canada) which had fallen below 5 and 0·5 respectively.

Of the protective value of successful immunisation to the individual there can be no question, yet the case rate and mortality rate in Western Australia during 1946 show no significant improvement upon figures for 1925–27.

A complexity of factors is no doubt involved in defeating the purposes of immunisation, but amongst those possibly contributing to this result the following may be of importance :—

(*a*) An increase in the virulence of the infective organism.
(*b*) Unsatisfactory methods of immunisation.
(*c*) Inadequate provision for stimulating dosage in the previously immunised.
(*d*) Inadequate cover of the susceptible population.

Early and comprehensive research into the factors involved has become a matter of urgent necessity and will be undertaken by the Department as soon as adequate professional staff is available.

Epidemic Control.

The rickety structure which at present serves to support the machinery required to counter epidemics must inevitably collapse if subjected to the strain of use against a virulent outbreak. Not only is it outmoded and ineffectual as a scaffolding for modern prophylactic machinery, but its basic structural weaknesses have been aggravated by years of disuse and neglect of maintenance.

The time is approaching when the methods of control applicable to infectious disease must be drastically revised in the light of modern conceptions of epidemiology. The introduction of such potent therapeutic agents as the sulpha drugs and penicillin, the ready means to hand for the control of insect borne disease provided by D.D.T., and the wider knowledge of the behaviour of infective organisms and the reactions of the body to them, which recent advances in bacteriology and medicine have made commonplace to the practising physician, must soon be correlated to methods of control applied by the health authority at present wedded to measures of isolation and disinfection rendered archaic by the newer knowledge.

Obstacles to this advance at present are :—

(*a*) Misinformation and prejudice in the general public whose education in infectious disease control has not advanced *pari passu* with medical knowledge and which is founded upon public health conceptions of a century ago.
(*b*) Administration in local health areas by local health authorities uninformed in epidemiology and modern methods of control.
(*c*) Failure of many such local health authorities in the interests of economy, to provide themselves with the necessary expert technical advice.
(*d*) Out-moded methods of some medical officers of health and health inspectors.

VENEREAL DISEASE.

Compared to 1945 there was a marked decline in the incidence of Syphilis both in males and females.

The number of cases of Gonorrhoea in males was greater than in 1945, but there was a substantial fall in cases amongst females.

VENEREAL DISEASE IN WESTERN AUSTRALIA, 1946.

Disease.	Civilians.			Services.		
	Male.	Female.	Total.	Male.	Female.	Total.
Syphilis—						
Primary	10	7	17	12	...	12
Secondary	3	8	11	...	...	...
Tertiary	5	12	17	2	...	2
Congenital	1	...	1	...	...	...
Total Syphilis	19	27	46	14	...	14
Gonorrhoea	310	87	397	93	1	94
Chancroid	1	...	1	4	...	4
Granuloma	...	1	1	1	...	1
Total	330	115	445	112	1	113

HOSPITALS.

Public Hospitals.

Inspections of Government controlled and subsidised hospitals totalled 61.

Hospitals, other than private hospitals, in Western Australia were, during the year, 217 trained nurses short of the number necessary to maintain adequate staffing. This represents a deficiency of 40 per cent. Factors operating to produce this deficiency included :—

(*a*) Increased demand by the public for admission to hospital.
(*b*) Reduction of working hours for nursing staff.

(*c*) The low output of graduates from training schools during certain of the war years.

(*d*) Diversion of trained nurses from hospital practice, by :

  (i) An increased marriage rate.

  (ii) Attractive terms offered by commercial enterprises.

Training Schools in Western Australia, as at present constituted, cannot make good the existing deficiency in trained staff and to overtake this it will be necessary either to increase the output from training schools or to increase their number. Existing training schools cannot successfully be materially expanded at short notice and the Nurses' Registration Board has, therefore, approved as full-time training schools, country hospitals with a bed average of 40 and over for a period of three years, and those with a bed average of 20 and over for a period of four years, subject to certain structural and administrative alterations directed towards improving the quality of training.

A disquieting feature is the contraction of the labour pool from which trainees may be drawn. Owing to the fall of the birth rate during the third decade of the century, the increased marriage rate of females in the age group below 20 and the rapid expansion of industry, the number of girls available for training must be expected to fall substantially between 1947 and 1951. It becomes important then that the maximum number of girls possible should be afforded an opportunity for training immediately and for this purpose every available training school should be used to maximum capacity.

Concurrently with the decline in the availability of nursing trainees and trained nurses, there has been a substantial increase in the number of untrained girls aged 14 years and upwards employed in hospitals as nursing assistants. Originally little more than ward domestics, these girls have of necessity during the period of nursing shortage, more and more invaded the field of the trained nurse and of the senior trainee. Several Government Hospitals which were formerly part-time training schools and which now have no trainees have been partially staffed with these nursing assistants. A few country hospitals retain only their nursing assistant staff.

Under the Nurses Registration Act and Regulations these girls are debarred from training by one or more of the following considerations :—

(*a*) They cannot conform to the requirements of the Nurses' Registration Board in respect of age.

(*b*) They lack the educational standard required by the Board.

(*c*) The Hospitals in which they serve are not approved as training schools.

(*d*) If they are removed elsewhere for training, the hospital will be deprived of staff.

It is estimated that some 50% of the State's sick, are, in consequence, denied even moderately competent nursing attention. Paradoxically this situation has been produced by legislation designed to improve nursing service.

Some method of relating the supply of non-specialised nurses to the demands of the community, must be evolved as a matter of urgency.

To meet this situation, Nurses' Registration Boards may well consider :—

(*a*) Constituting as Training Schools all hospitals complying with present requirements as to bed average, subject to immediate rectification of all deficiencies of structure, equipment and professional staffing calculated to impair training.

(*b*) Prescribing a course of training for nursing assistants in hospitals which cannot attain the status of training schools under the Act.

(*c*) Re-constituting the nursing profession and its training in the direction of establishing two grades of nurse.

  (i) *Nursing Aid.*—Licensed nursing sick attendant or auxiliary nurse who may train to a special curriculum in an approved hospital however small, and who may, after training, be issued a Certificate, permitting her to practise for reward as a Nursing Aid privately or in hospitals.

  (ii) *Registered Nurse.*—A nurse trained for three years in an approved major hospital or one who after completion of training as a nursing aid has undergone a further two years training in a major public hospital approved by the Board.

Pending any such reconstitution of the profession, hospital administrations must be reconciled to an enduring nursing shortage and steps must be taken to modernize equipment and to modify nursing practice to conserve effort and reduce the waste of labour. Some measure of relief may be afforded in a few institutions by a wider use of male nurses.

Tuberculosis in Nurses.

The acute nursing shortage prevailing during the year, directed attention to the incidence of Tuberculosis amongst nurses.

On the one hand the loss of nursing staff through illness from all causes attained a relatively greater importance in relation to the minimal staff available and on the other the public attention focussed upon this incidence, was believed to be a factor in dissuading girls from undertaking nursing as a profession, Under the system of training in Government Hospitals it had been the practice to send trainees initially to Wooroloo Sanatorium where they attended the preliminary training school and subsequently served 16 months of their training period. They were then transferred to country hospitals for a further 18 months service and served a final year at Kalgoorlie.

It was considered that undue risk of infection with Tuberculosis attended—

(*a*) Prolonged service in a sanatorium by girls who had not previously established any resistance to Tuberculosis.

(*b*) Entry into a Tuberculosis Hospital of girls in the initial months of their training when it was to be expected they would not be sufficiently aware of the risks involved, nor adequately trained in methods of self-protection.

The course of training in Government Hospitals, therefore, was amended and trainees will no longer serve at Wooroloo but will train full-time in approved country hospitals, *e.g.*, Northam, Narrogin, Collie, and Kalgoorlie. It has been directed further that the Tuberculosis Hospital at Wooroloo will be staffed only with persons who at the time of entry are found clinically free from Tuberculosis, but who present a positive mantoux re-action indicating development of some resistance to infection. A special two years course of training for registration by the Nurses' Registration Board as Tuberculosis Nurses will be available to male and female nurses staffing Wooroloo.

Enquiry into the subsequent history of 232 nurses trained under the previous system reveals that the incidence of Tuberculosis amongst them has been at the rate of 0·94% per annum, a figure less than that observed in general hospitals in other parts of the world (*e.g.*, Saskatchewan, 1·3%). The disease occurring in the great majority has been minimal in extent and with an excellent prognosis.

During the year a system of careful checking for the detection of early Tuberculosis has been applied to all nurses within the Department's employ. This comprises frequent and regular review of the mantoux re-action, X-ray and clinical re-examination and prohibition of the nursing of Tuberculous patients by girls with a negative mantoux test.

Private Hospitals.

One new license for an " A " Class general hospital was granted during the year. The number of private hospitals licensed during the year was 24 for a total of 719 general beds and 148 obstetric beds.

A survey for the classification of 11 "C " Class Hospitals eligible for Federal Hospital Benefits was made. Ten premises were licensed as "C" Class Hospitals for a total accommodation of 131 beds.

In private hospitals the general cases nursed during the year far exceeded the number permitted by the license. Until more hospital accommodation is provided, and this must await improvement in the availability of labour and building material, it will not be possible strictly to enforce the regulations regarding bed space. The standards of equipment and furnishing are reasonably good.

Accommodation for nursing staff in every instance is inadequate following the reduction of hours of duty and the increased number of patients treated. The practice of " living out " to provide accommodation for extra staff has become general throughout the Metropolitan Area in all but the largest hospitals.

Maternity Hospitals.

Maternity homes licensed during 1946, numbered 15 for 131 beds. Four maternity homes closed during the year, the reasons being in three instances lack of staff and in the fourth the reluctance of the landlord to carry out essential repairs.

Maternity homes in the Metropolitan Area were inspected twice and in the country once during the year. Total inspections were 192. Visits to maternity cases and midwives in private dwellings, totalled 42.

Only 55 births were notified as having taken place in dwellings and considerable overcrowding was necessary to meet the demands of the public for admission to obstetric hospitals. This, combined with a shortage of domestic and nursing staffs made the year an arduous one.

Five maternal deaths were reported as having occurred in private maternity homes and the necessary reports were forwarded by the midwives concerned to the Coroner. The circumstances attending these deaths were studied by a specialist obstetrician and a midwife, and the professional attendants were pronounced free from blame.

Two cases of puerperal fever, one from a Maternity Home and the other from a private dwelling, were reported.

NURSES' REGISTRATION BOARD.

Twelve meetings of the Board were held during the year.

The Nurses Registration Act, 1921–44, was amended in November, 1946, to provide for the registration, as Tuberculosis Nurses, of persons completing a prescribed course of training and passing an examination for registration conducted by the Nurses' Registration Board.

New regulations rendered necessary by the amending Act of 1944, were finalised by the Board and approved by His Excellency the Lieutenant-Governor in Executive Council on the 22nd November, 1946.

The number of nurses registered in the various Divisions of the Register at 31st January, 1946, was :—

General	1,163	(959)
Children's	20	(18)
Infant Health	151	(116)
Mental	51	(3)
Midwifery	730	(660)

The figures in parentheses are comparative figures for the year ending December, 1945.

One name was removed from the Midwifery Division under the provisions of Section 10 of the Act.

Four applications for restoration of name to the Midwifery Division were approved, and one was rejected.

INFANT HEALTH.

At the beginning of the year there were 31 infant health centres conducting 72 sub-centres. During the year, 1 centre was closed temporarily and three centres and 22 sub-centres were opened.

A detailed statement of attendances at Infant Health Centres is furnished in Appendix X. Noteworthy features are the fall in total attendances—120,383, compared to 139,900 in 1945 and a 22% decline in attendances per infant, notwithstanding the increased number of infants under 9 months enrolling—6,847, compared to 6,621 in 1945.

It is difficult to discern the reason for the decline which is equally a feature of returns from centres outside Departmental control, but it may be attributable to migration of parents following return of fathers from War Service

There is no uniformity in the approach by Infant Health Nurses to the routine procedures of examination recording and advice. They represent the trainees from several different training schools over a period of many years. There is no training school for Infant Health in the State and there is, therefore, no instructional authority which can standardise procedure or co-ordinate service. Re-opening of the training school for Infant Health Nurses is a matter of the first importance as is also formulation of a method of direction which will ensure uniformity if not in all Infant Health Centres at least throughout those directed by the Department.

The year under review was the first to be completed since the Government assumed responsibility for nurses' salaries, and travelling expenses. During the year anomalies arising from the ill-conceived plan for dual control have become apparent.

These particularly involve the status of local Committees charged with the responsibility for providing amenities, transport and the like.

In certain areas Local Committees have been dissolved following quarrels with officers of the Department and there remains no body or individual to whom the nurse of the Department may look to undertake the functions which in the current establishment it is assumed will be performed by the local committee.

The whole organisation requires overhaul with a view to :—

(*a*) Specific allocation of function and responsibility as between the Department and the Local Committee.

(*b*) Firm establishment of the local organisation preferably in a body corporate with perpetual succession in order that the property and functions of local committees may continue in the hands of a stable administrative entity and not be subject to rejection at short notice under the influence of pique or apathy. This is a responsibility which might well be transferred to local authorities under any plan of re-organisation into Regional Health Authorities. In the alternative the whole service should be completely taken over by the Department.

SCHOOLS MEDICAL SERVICE.

Appendix XI. shows the results of the medical inspections of school children conducted in Metropolitan and country schools.

It suggests that :—

(*a*) In most particulars, rural children are in appreciably better condition than are their fellows in the Metropolitan Area.

(*b*) The proportion of children requiring medical attention for pathological conditions of the tonsil is higher in country districts than in the City.

The significance of these figures and the value of conclusions drawn from them however are questionable. How far apparent disparities are attributable to differences in standard and judgment between the ndividual examining officers cannot, under present practice be determined.

The more frequent examination of children in the City and the greater facility with which surgical attention is accessible to them, probably explain the lower Metropolitan incidence of pathological disease of the tonsil.

Noteworthy is the absence of any recall in country areas, a reminder that the Schools Medical Service cannot, in the country, as it can in the city review the subsequent progress of children presenting defects at the time of their first examination.

The Schools Medical Service is inadequate and in its present form involves an unprofitable dissipation of public funds.

There are three medical officers, one employed partly on administration and partly on school inspections in the Metropolitan Area. Of the others, one conducts inspections in the Metropolitan Area and one in the country. There are 77,923 school children in the State between the ages of 5 to 17, and the number entering school each year approximates 9,000.

Under suitable conditions a schools medical officer can examine 9,000 children in the Metropolitan Area and 7,500 in the country in a school year, and, in fact, during 1946, a grand total of 21,301 were examined.

It will be seen that the existing staff cannot encompass the field satisfactorily and it must either be increased proportionately or its duties must be revised.

To ascertain whether parents have taken advantage of the advice given, a staff of three visiting nurses, in the Metropolitan Area only, subsequently visits and re-visits children reported for medical attention. In roughly 50% of these children the advice of Schools Medical Officers is ignored by parents or dismissed by the family practitioner and the purpose of school medical inspections is defeated.

An adequate school medical service should :—

(*a*) Provide for the examination of every child not less frequently than three times during his school curriculum, *viz.*, on entry, half-way through and on leaving.

(*b*) Provide for the re-examination and review of every child presenting defect or abnormality. These reviews should be as frequent as may be necessary to verify correction or study progress of defects reported.

(*c*) Facilitate the correlation of each child's current physical condition with his pre-school medical history, his family medical history, his environment, diet and subsequent progress.

(*d*) Collect and maintain records permitting the assessment of the norm of physical development of children at different ages throughout the State.

(*e*) Present a readily comprehensible picture of any regional variations from the norm, thereby directing attention to sociological and epidemiological influences demanding further study or correction.

The system of examination by Departmental Officers at present does not fulfil these requirements.

(*a*) School Medical Officers do not see the school child with sufficient regularity or frequency and do not see the pre-school child at all.

(*b*) Departmental School Medical Officers have no contact with the child before or after the intermittent examinations. They cannot adequately relate current findings to previous or subsequent medical history, family history or environment.

The reactions of individuals to pathological conditions are essentially variable. The medical adviser to the individual cannot make an accurate appreciation by rule of thumb method, but to assess the importance of any pathological condition found at any juncture must be fully informed of the previous medical history. This is not possible for Departmental Medical Officers.

(*c*) Departmental Officers are out of touch with the practice of medicine and are therefore at a disadvantage in determining the necessity for, or the nature of treatment.

(*d*) Departmental Officers do no treatment, merely advising consultation with a private practitioner with a view to treatment which may or may not be confirmed even if a private practitioner is consulted. The proportion of children whose parents accept School Medical Officers' advice is small.

(*e*) Records for the determination of physical norms are not collected nor do present methods provide information permitting study of the relative incidence of defects in various regions.

On the other hand attention by the family practitioner could effect all these requirements if co-ordinated and directed. It may indeed reasonably be submitted that the best schools service would be one in which information regarding a child during its period of growth and development would be provided by the Medical Practitioner ordinarily consulted by the parents when the child is sick. Such a practitioner has the child under more or less continuous observation. He is commonly fully aware of its medical history from the time of birth and various sources of information concerning the family history, inaccessible to the Schools Medical Officer, are readily available to him.

Furthermore when the Schools Medical Officer advises review of treatment it will be to this medical practitioner that the parents refer the child, so that ultimate determination of the necessity for interference and the choice of therapeutic measures will, in fact, rest with him. A logical and preferable development of the Schools Medical Service would, therefore, be its transfer to the hands of the local Medical Practitioner. Such a transfer has in addition the merit of reducing costs and loss of time incurred by the itinerant Medical Officer who in fact does little more than effect a preliminary sorting of the children, which could be more effectively performed by the Medical Practitioner himself, and, in many cases, as effectively performed by a less highly trained officer.

With development of the National Medical Service, visualised by the Commonwealth, treatment of school children, referred for medical attention, will be available free, and the objection, that medical practitioners in country districts may exploit the opportunities afforded them as Schools Medical Examiners, to increase practice to the prejudice of the child's welfare, will be removed.

It would appear desirable, therefore, that immediate attention be given to adapting the Schools Medical Service to its easy orientation into the Commonwealth Medical establishment.

This may be attempted by organising a child health service by local practitioners under the immediate direction of the local health authority co-ordinated and directed by the Department of Public Health.

This child health service should provide for medical supervision and treatment of the child from birth until the age of leaving school. With it should be associated a consultant service particularly in the eye, ear, nose and throat specialities.

It will always be necessary for the Department to have Medical Inspectors to review and check the service rendered school children by local medical practitioners, but this does not justify an expansion of the existing service upon the basis of its current operation.

School Dental Service.

Of the 77,928 children attending school during the year 1946, only 2,653 could be inspected by the inadequate Dental Staff available and of these 1,996 received dental attention. The estimated percentage of children inspected requiring dental attention, was 92%.

The amount of work involved is infinitely greater than can be performed by the limited staff available and many portions of the State, particularly those in remote areas where private dental attention is unobtainable, have not been visited by the Schools Dental Staff for seven or eight years.

A Schools Dental Service should have as its policy :—

(*a*) Rendering every child dentally fit on entry to school.

(*b*) Review of all children subsequently at intervals of six months to maintain this standard of dental fitness.

To develop a schools dental service adequate in terms of this objective would require either extensive use of the services of local dental practitioners or the very considerable expansion of the State Dental Staff.

In certain areas the use of dentists in private practice might be possible, but for the most part it has been found that :—

(*a*) Practising dentists are far too busy and overworked to undertake this additional burden.

(*b*) The volume of work involved for the local practising dentist would be such that he would tend in the circumstances to have regard to radical rather than to conservative treatment. thereby prejudicing the best interests of the child.

(*c*) It is impossible to secure any unanimity amongst practising dentists as the basis of remuneration for the work.

Whilst, therefore, in the case of medical attention, it would be preferable to have the function of periodic review and necessary treatment transferred to the hands of the child's personal medical adviser, it may be necessary in respect of dental attention for the State to expand its dental service as an inspection and therapeutic instrument intended and adequate for the objective set out.

Ophthalmic Nurse.

A trained nurse with special experience in diseases of the eye, ear, nose, and throat, was appointed to this Department from the 29th July, 1946. During the year she visited 38 schools throughout the midland, central, and eastern goldfields reporting upon auditory and visual defects in children. The total number of children examined was 1,838, including 209 pre-school children.

Of the 1,629 school children examined 3·49 per cent. were in need of attention for auditory defects and 14·69 per cent. for visual defects. 24·6 per cent. required attention for other reasons. No treatment was given by the nurse during her itinerary.

The results of the survey direct attention to the necessity of providing country areas with a consultant service for diseases of the eye, ear, nose, and throat. This might be effected by itinerant consultants or by assisting parents to bring children to the City. With the second alternative in view the National Fitness Council has been asked whether it could assist by providing accommodation and escort in conjunction with its youth camp projects.

INSPECTION STAFF.

Health Inspectors' Conference.

Early in the year a conference of health inspectors was called in Perth for the purposes of addressing them upon certain aspects of health administration in Local Authority areas, encouraging them to read papers upon problems encountered in the field and affording them an opportunity of discussing amongst themselves and with experts available in the Metropolitan Area, improvements in technique, and advances in public health. It is hoped that a conference of this nature will be repeated annually. The project was a pronounced success, 68 inspectors attending from all parts of the State out of 71 invitations issued.

Bacteriolytic Sewage Disposal.

The policy of the Department to encourage the installation of bacteriolytic sewage treatment tanks has continued. During the year the number of plans approved by the Department for such installations was 1,592, the total revenue from this source being £1,735 12s. 6d.

Imported Fish Inspections.

70,560 lb. of imported fish were subjected to inspection during the year for a revenue of £21.

Legal Proceedings.

During the year 38 complaints were laid by Departmental Inspectors. Three of these were withdrawn and in the remaining 35 convictions were obtained. Fines imposed totalled £95 and the sum of £14 8s. was recovered as costs.

Appeals.

Appeals to the Commissioner of Public Health against orders served by Local Authorities numbered six. Of these four were dismissed and in the remaining two the Orders were amended.

Visiting Nurses.

The visiting nurses inspected the home conditions of all notified domiciliary tuberculosis patients in the Metropolitan Area and in all the larger country towns. Visits numbered 3,004. All contacts of patients were interviewed and arrangements made for their X-Ray examination.

Tuberculosis and screening clinics (six weekly) conducted at the Royal Perth Hospital and at Fremantle Hospital, and the weekly chest clinic at the Children's Hospital, were each attended by a visiting nurse.

Miscellaneous visits associated with Diphtheria swabbing and Venereal Disease enquiries, numbered 84.

INDIGENT PERSONS.

Aged and Infirm.

The age distribution of the population in Australia in 1946 was estimated to be :—

Age.	%
0 to 19 years	34·6
20 to 44 years	37·9
45 to 64 years	19·7
65 and over	7·8

A quarter of a century ago the proportion in the age group 65 and over was 2·36 per cent. At that time the State provided accommodation for one in every 15 of this group. Today the provision is limited to one in every 61.

These persons are not usually in good health, and even if normally in good health they frequently require institutional care.

At present they constitute an acute embarrassment in hospitals where they occupy beds for long periods with imminent risk of being discharged prematurely to make room for the acutely ill.

It is necessary to consider the adequacy or otherwise of provision outside hospital for these aged people at a time when housing shortage and the increased tendency to live in flats and tenements has made it difficult for the younger generation to care for its aged.

Thought may well be given to variation of the policy which dictates that provision for the aged shall be limited to the Metropolitan Area. Those who have lived most of their working lives in the country and retain ties of affection and interest in the localities in which their productive years have been spent, usually refuse transfer to institutions in Perth, often averring that they would prefer suicide. In the result, therefore, they are permitted to make such unsatisfactory and unhygienic housing provision for themselves as their meagre incomes will permit and when not in hospital the conditions of their existence constitute a reproach to the local health administration and their relatives and friends.

It is clear that the solution to this problem should be sought in the provision of accommodation with adequate fuel and light, water, and sanitary facilities within the local authority area, and the allocation of funds to the local authority for this purpose might profitably be carefully examined.

Natives.

In many settled areas migratory or resident natives live in the outskirts of townships under substandard housing conditions. Often they are without adequate water supply, light or sanitary convenience and they constitute a serious menace to the health of the community generally.

These persons also should be provided within the local authority area with suitable living accommodation, equipped with adequate sanitary facilities and the proposal that their housing should be undertaken by the local health authority, in conjunction with that of the aged and infirm, might well be considered. Funds for this purpose would necessarily require to be allocated to the local authority from the Treasury.

NORTH-WEST MEDICAL SERVICE.

Leprosarium.

The following table analyses admissions and discharges at Leprosarium, Derby, during the year.

	Males.	Females.
Inmates as at 31st December, 1945	128	116
*Admissions for period ended 31st December, 1946	27	14
Discharges for period ended 31st December, 1946	15	16
Deaths for period ended 31st December, 1946	9	8
Total remaining in Leprosarium as at 31st December, 1946	129	102

*Includes five males and one female re-admitted ....
Two males and two females absconded.

Medical Staff.

The North-West medical service needs young, active, enthusiastic and highly competent men able to meet all contingencies. This implies that they should be derived from the best type of Senior Resident Medical Officer with a flair for surgery and the inclination to study.

Such officers may face stagnation in certain North-West ports and it is necessary to assure them at the time of appointment :—

(*a*) Remuneration adequate to exceed any counter-attraction nearer the Metropolitan Area.

(*b*) Facilities for post-graduate study towards the attainment of a higher degree comparable to those offering in more settled areas.

(*c*) Conservation of status to assure priority over the competitor of equal or less competence who has remained in contact with Metropolitan practice.

Considerable difficulty has been experienced in attracting and retaining suitable medical staff. Two centres, Derby and Onslow have been proclaimed regions under the Medical Act so that they might be staffed by unregisterable medical practitioners holding alien qualifications. Not least amongst the objections to this course is the fact that the control of appointments under such circumstances passes from the hands of the Principal Medical Officer to the Medical Board.

Factors operating against staffing today include :—

(*a*) Reduction of salary by income tax to an unattractive level compared to private practice.

(*b*) Deprivation of the saving margin by reductions for income tax.

(*c*) Partnership in metropolitan practice offered by established practitioners, the tendency among whom nowadays under the pressure of income tax, is to sell shares in the practice or to take assistants.

(*d*) In the shadow of a National Medical Service the future for the individual Medical Practitioner is difficult for him to discern. Young men believe it is wise to establish themselves immediately in or near the metropolis lest the inception of a National Service finds them in remote rural localities where they may be directed to remain.

VITAL STATISTICS.

Statistical information supplied by the Government Statistician is included in the Appendix.

Birth Rate.

The birth rate during 1946 (24·49) was substantially higher than it has been of recent years.

The increase is typical of a current world-wide trend, and is not to be attributed to any exclusively local factor. Whether the birth rate will continue to rise or whether it will even be maintained at its present level with the return to more stable peace-time conditions are matters for speculation.

The Infant Mortality.

The infant mortality rate (31·6 per 1,000 births) for the State was slightly higher than in the previous year, but this increase was wholly due to extra-metropolitan influence (37·84), which is to some extent loaded by the higher mortality in native children living in difficult conditions.

The infant mortality rate for Western Australia compares unfavourably to those of the other States and New Zealand. It should be remarked, however, that the Metropolitan rate at 25·01 is a lower figure than is presented elsewhere and the unfavourable overall average is determined by the high death rate in the rest of the State (37·84).

The unsatisfactory country figure is probably to be ascribed to :—

(*a*) The greater relative dispersion of rural population and the consequent inaccessibility of aid.

(*b*) Dietetic difficulties in mining and remote areas.

(*c*) Loading by native deaths.

General Death Rate.

The general death rate (9·61 per 1,000) remains much the same as for 1945 and compares favourably with the rates of other States and New Zealand.

Present trends in the population indicate that the aged and infirm age groups in the population (65 or over) will constitute one-quarter of the population by 1956 and the maintenance of an improved birth rate is a matter of the highest social importance. In order to offset the trend towards predominance of the aged certain measures are practicable towards diminishing the loss of infant life.

(*a*) *Sterility Clinics.*—No properly constituted sterility Clinic exists in this State for the advice of childless married couples. A properly staffed and adequately equipped clinic of this nature is a pressing need in the metropolitan area.

(*b*) *Abortion.*—There is a considerable wastage by abortion. Although the Health Act requires midwives to notify, within 48 hours, every case of abortion attended, little attention appears to have been given to this obligation in the past and it is impossible to arrive at an estimate of the loss through this cause during the year. Obligations of midwives in this respect are being brought energetically to their notice.

(*c*) *Ante-Natal.*—Provision for the Ante-Natal supervision and care of pregnant women leaves much to be desired. Careful attention is afforded prospective mothers at King Edward Memorial Hospital and medical practitioners in private practice with varying degrees of conscientiousness keep their patients under observation during the period before labour. There is, however, no co-ordination of laboratory, clinical, and educational methods for ante-natal care, a circumstance to which a proportion of maternal deaths from toxaemia and difficult labour must be attributed.

(*d*) *Still Births.*—Still births during 1946 were at the rate of 24·3 per thousand confinements, the rate being substantially higher in the metropolitan area than in the country.

An analysis for the whole year is not yet possible, but the rates for the first six months of the year were respectively—metropolitan 30·78 and rural 17·52. By comparison the metropolitan still birth rate in 1945 was 22·07 per thousand confinements so that the metropolitan rate for 1946 shows an increase roughly of 40 per cent.

The actual births in 1946 were 12,105 compared to 10,672 in 1945, so that the rise in the metropolitan still birth rate has been concurrent with a rise in the birth rate. Whether these observations are, in any way, related as cause and effect, it is not possible at present to say, but the figures do suggest that the increase in the birth rate may have been directly associated with increased risk to the foetus in one or more of the following ways or in other ways :—

(i) By the extension of births into a group of mothers at risk.

(ii) By imposing upon busy practitioners and the over-worked nurses of under-staffed hospitals, a stress preventing them from affording mothers pre-natal observation and care adequate to permit their forecasting and avoiding obstetric risks to the foetus.

(iii) By inducing over-worked obstetric attendants to afford hurried and imperfect attention at the time of delivery.

(*e*) *Neo-natal Deaths.*—1·8 per cent. of infants born alive died within the first week after birth. This represents 55 per cent. of all infant deaths during the first year of life. Causes of death were primarily those which play such a significant part in the still-birth rate, namely, prematurity birth injury and inherent defect following abnormal conditions *in utero*.

Research into these factors of depopulation is necessary with a view to determining the measures to be taken to correct them. It may well be that an improved system of ante-natal care, supplemented by the intensive post-graduate instruction of obstetricians, particularly of the general practitioner class, and education of the public may contribute towards a material reduction, but all these must be based upon an ordered research which clearly indicates the most profitable methods of approach.

CONCLUSION.

It may be concluded that whilst the general health of the State during the year has been satisfactory when viewed in the light of standards set elsewhere in the Commonwealth, there is still need for considerable improvement in several directions. Efforts to this end should not await initiation of new measures in other States, themselves in some respects backward in comparison to other parts of the British Commonwealth and other countries of the World.

Particularly is it necessary that the out-moded machinery for the control of infectious disease in Local Authority areas should be replaced by an establishment competent to combat virulent epidemics, hitherto avoided by good fortune but likely to be introduced by air at any time from countries overseas where conditions of famine and disorder obtain. This reorganisation could probably be best attempted by the re-alignment of the boundaries of health districts and the constitution of regional health boards which with adequate expert advice and financial assistance from the Treasury will :—

(*a*) Administer the Health Act.
(*b*) Conduct infant health clinics.
(*c*) Undertake the care of pre-school children.
(*d*) Organise school medical service.
(*e*) Undertake the care and housing of the aged and infirm.
(*f*) Provide for the housing of natives.
(*g*) Control hospitals.

(Sgd.) CECIL E. COOK, C.B.E. M.D., D.P.H., D.T.M., and H.
Commissioner of Public Health.

APPENDIX 1.

REPORT BY THE GOVERNMENT PATHOLOGIST AND BACTERIOLOGIST.

The Commissioner of Public Health.

I have the honour to submit herewith a report on the activities of the Public Health Laboratories during 1946. Early in the year the staffing situation eased ; the Pathologist was enabled to give his full attention to the Laboratories following the assumption of duty by the incoming Commissioner during March, and Mr. A. F. Drummond resumed duty as Laboratory Assistant after demobilisation in February.

Swineherd's Disease in Western Australia.

One possible case of this disease came under observation, but unfortunately not until the 9th day following the onset of fever. Blood failed to agglutinate either *Proteus X*19 *or XK.* Rabbits and guinea pigs were inoculated with blood from the case but failed to develop febrile reaction.

Repeated Abortion.

At the suggestion of the Commissioner, medical practitioners are forwarding to the laboratory specimens of blood from patients who have had repeated miscarriages. Such specimens are tested by the Wassermann reaction for *B. abortus* agglutinins, and also for the Rh factor. If any prove to be Rh negative, tests for Rh antibodies are undertaken. We are indebted to Dr. G. A. Kelsall, Assistant Director of the West Australian Red Cross Transfusion Service for the latter tests. Twenty-three cases have been investigated from August onward. In all, the Wassermann reaction was negative. One agglutinated *B. abortus* to 1/800 titre and three more to 1/50 titre ; the remainder were negative. Three proved to be Rh negative but only in one instance were antibodies reported.

Malaria.

Eighteen cases of *P. vivax* malaria were diagnosed. The histories indicated that all were experiencing relapses of prior infections ; in no instance was there likelihood that local transmission had occurred. A few cases had originated among civilians from the Islands and from Malaya, but the majority had been infected while in the Services. This number of positive cases cannot be regarded as any indication of the number of possible local gametocyte carriers for the majority of blood films from ex-service personnel are examined elsewhere for the Repatriation Department.

Agglutinative Tests.

The number of agglutinations refer to tests and not to cases. Where there is no suggestion of prior inoculation or infection, standard agglutination at 1/100 titre is classed as "Positive." The interpretation of result is, however, much complicated by the presence of residual agglutinins following T.A.B. inoculations in many demobilised men and women. Residual agglutinins may become considerably augmented during a febrile attack, and although a rising titre for one particular organism often provides a clue to diagnosis, the method is not always successful in yielding clear cut results. For instance, the third repetition on one case gave agglutinations at the following serum dilutions—*B. typhosus* "H" 1/400 ; *B. paratyphosus* A, 1/2,000 ; *B. paratyphosus* B, 1/400 ; *Proteus X*19, 1/2,000 : *B. abortus*, 1/1,000. The titres for these organisms had risen steadily throughout the course of the disease. The final diagnosis was one of typhus fever in a person previously inoculated with T.A.B. vaccine who, in the past, had had undulant fever. In 29 of 285 tests, non-specific stimulation of *B. typhosus* "*H*" residual agglutinins appeared to have occurred, but in only seven of them was the *B. typhosus* "*O*" emulsion agglutinated.

Weil Felix Reactions.—Of 282 specimens submitted, 100 showed standard agglutination of Proteus X19 at a minimum titre of 1/100. Positive findings were reported in every month of the year but something of a peak occurred over the period March to July, while December also yielded an unusually large number.

Widal Reactions.—Ignoring tests in which the findings suggested positivity due to prior inoculation. 23 sera agglutinated typhoid or paratyphoid bacilli. Positive results were most numerous in January and from September to November.

B. Abortus agglutinations.—Nine of 286 sera examined gave positive tests.

Tuberculosis.

Eighty-four of 638 sputa yielded acid fast bacilli. The number of guinea pig inoculations reached a total of 113—a considerable increase on previous years. Many were stomach contents from Wooroloo Sanatorium. The paucity of positive results may perhaps be explained by the time interval between the taking of samples and the actual inoculations. Recent publications have stressed that a decreasing percentage of positives occurs as this time interval increases, probably due to the action of the gastric secretion on *M. tuberculosis.*

Leprosy.

Fifty-three cases suspect of leprosy were examined bacteriologically. The number of smears involved was 152 of which 39 from 13 cases proved to be positive. Routine checks on the inmates of the Leprosarium were continued ; 1,795 films (of which 402 were positive) were examined from 539 persons (205 were positive). Most of the cases were examined twice during the year.

Milks.

Bacteriological counts were made on 139 samples of milk and the reductase test was undertaken on 25 samples. Fifteen additional specimens were examined for cells and organisms, including *M. tuberculosis.* Ten specimens of pooled milk were inoculated into guinea pigs with negative results.

Waters.

The number of bacteriological counts on water samples numbered 968. Scattered sampling of reticulation water was continued.

Medico-Legal.

Forty exhibits from 19 cases were submitted. Nine cases involved reports on hairs ; spermatozoa were identified on five specimens and a positive Florence's reaction was obtained on one more. The presence of human blood was proved on five articles and in two instances the blood group of stains was satisfactorily established. Sausages and meat were examined for horseflesh with negative results. Bones and hair from a mouse were identified from a specimen of milk.

The following Table shows the numbers of specimens examined under some of the more important headings. The figures for 1939 and 1945 are included for comparison. It is emphasised that the numbers refer to specimens and not to cases ; several specimens may be received from a single case.

Test.		Result.	1939.	1945.	1946.
DIPHTHERIA	Culture for *C. Diphtheriae.*	Positive ...	391	201	723
		Negative ...	5,809	2,634	4,442
GONORRHOEA	Complement Fixations	Positive ...	142	765	781
		Negative ...	911	2,248	1,966
		AC.	...	29	91
	Smears	Positive ...	632	447	510
		Suspicious ...	...	50	25
		Negative ...	4,444	4,470	4,029
LEPROSY	Smears	Positive ...	0	329	441
		Negative ...	5	1,335	1,506
MALARIA	Smears	Positive ...	...	...	18
		Negative ...	...	...	36
SYPHILIS	Wassermann Reactions—Bloods	Positive ...	398	499	740
		Negative ...	3,708	5,797	5,395
		AC. ...	...	35	31
	C.S.Fs.	Positive ...	...	18	17
		Negative ...	...	301	230
		AC.	...	3	3
	Kahn Reactions	Positive ...	...	798	769
		Negative ...	...	1,683	1,540
TYPHOID FEVER ...	Widal Reactions	Positive ...	10	52	23
		Negative ...	160	202	262
TYPHUS FEVER	Weil-Felix Reactions	Positive ...	41	86	100
		Negative ...	114	166	182
TUBERCULOSIS	Smears	Positive ...	101	80	84
		Negative ...	772	496	554
	G.P. Inoculations	Positive ...	5	16	8
		Negative ...	63	62	105
UNDULANT FEVER ...	Agglutinations	Positive ...	...	11	9
		Negative ...	...	241	277
MORBID HISTOLOGY ...	... ...	Malignant ...	30	84	99
		Precancerous	...	8	11
		Non-malignant	111	170	209
MEDICO-LEGAL CASES ...	... ...	... ...	25	25	19
BACTERIAL COUNTS ...	Waters	... ...	763	983	968
	Milks	... ...	12	52	139
BLOOD COUNTS	... ...	... ...	...	91	89

General.

Additional to the examinations detailed in the Table, Paul Bunnell reactions were undertaken for eight cases with one positive result. Friedman pregnancy tests were made 27 times with 11 positive results. Complement fixations for hydatid numbered 17 (2 positive), while 534 general bacteriological and 271 chemical and general tests were performed.

Apparatus.

The new binocular microscope (apart from certain accessories) and an electric centrifuge were received during the year. The provision of a Kahn shaker, a new water distillation plant and paraffin embedding and 56° C. water baths will be deferred until the projected amalgamation of the Public Health and the Royal Perth Hospital Laboratories is effected.

Staff.

It is again a pleasant duty to report that Messrs. W. C. Croome and A. F. Drummond, and Miss L. A. W. Anderson, have worked with their customary zeal and thoroughness during the period under review.

A. NEAVE KINGSBURY, M.D., B.S., B.Sc., D.P.H., D.T.M. & H.
Government Pathologist and Bacteriologist.

REPORT FROM THE DIRECTOR,
TUBERCULOSIS BRANCH, TO THE COMMISSIONER OF PUBLIC HEALTH.

The Commissioner of Public Health.

I have the honour to submit a report on the activities of the Tuberculosis Branch for the year ending December, 1946.

Deaths.

The death rate has remained practically stationary over the past five years. In 1946, the total number of deaths was 170. The following are further particulars :—

1942	192 deaths
1943	153 ,,
1944	149 ,,
1945	163 ,,
1946	170 ,,

It is probable that the total number of deaths in 1945 and 1946 were increased by the return of men from war service.

Year.	Notifications.			Deaths.	Death Rate per 100,000.	Ratio of Notifications to Deaths.
	Pulmonary.	Non-pulmonary.	Total.			
1943	273	54	327	153	31·7	2 : 1
1944	219	7	226	149	30·5	1 : 5
1945	271	14	285	163	33·2	1 : 7
1946	343	69	412	170	34·6	2 : 4

The increase in the notifications in 1946 was caused by the compulsory X-ray examination of the chests of all personnel discharged from the services. This yielded a large number of cases of minimal disease that would otherwise not have been diagnosed. There were about 100 cases in all. In normal events, these minimal cases would not have been discovered until subsequent years, when their disease had become worse and was producing symptoms.

An increase in the non-pulmonary cases was due largely to the activities of the tuberculosis clinic at the Children's Hospital. Added interest has very rightly been taken in the incidence and the treatment of non-pulmonary disease in children, particularly disease of glands in the neck.

The co-operation of general practitioners and physicians is necessary if notification figures are to have any accuracy. Some physicians do not notify cases until a terminal stage of their illness in order to spare the feelings of relatives, even though proper public health measures of contact examination and control would be instituted earlier with earlier notification.

The feelings of relatives might be spared for the time being but their bodies are not, and they have a greatly increased risk of contracting tuberculosis by continued exposure. The ratio of notified cases to annual deaths may be regarded as an index of the co-operation of private doctors. It is estimated that a ratio exceeding three may be regarded as very good, good if between two and three, poor if under two, and very poor if less than one. This is illustrated by the figures above.

It will be noted that in no year did this ratio exceed three, and that in two years—1944 and 1945—the ratio was well under two.

Prompt and unreserved notification is necessary if adequate measures to control the infection are to be taken by the Public Health Department. Further, notification by the doctor in charge of the case is compulsory under the provisions of the Health Act.

In my report for the years 1944–45, an outline of a plan for tuberculosis control was presented with indications of a programme to be adopted in this State for the next three years. The end of the year 1946 presents an opportunity for a progress report.

1. *Programme of Case-finding and Diagnosis, etc.*

The only expansion in this programme has been the formation of a clinic at the Children's Hospital, where very good work has been done. An expansion of activities at the Royal Perth Hospital clinic has not been possible because of the shortage of medical staff.

However, at the end of 1946 an important appointment was made. We were fortunate to secure the services of Major Alan King, who had extensive experience in the treatment of pulmonary tuberculosis in Germany while a prisoner-of-war, and who subsequently travelled on behalf of the Army in Britain, U.S.A. and Canada. On return to this country he was connected with the treatment of Service cases in Bonegilla and in other States. He has been appointed to the position of Tuberculosis Physician to the Tuberculosis Branch of the Public Health Department, and it is anticipated that he will commence duty early in 1947. It will then be possible to commence an expansion of the clinic facilities in Perth and the Metropolitan area.

Mass radiography has not yet been commenced. Enquiries are being made into the relative merits of the 5in. x 4in., the 70 mm. and the 35 mm. techniques. Anticipated developments in the clinic activities will be considered later in this report.

2. *Measures for Hospitalisation and Treatment.*

The problem of the shortage of beds is unsolved still. The delay in the completion of the new wing of the Royal Perth Hospital has held up consideration of the possibility of using the old wards at the hospital as a surgical unit for the treatment of pulmonary tuberculosis.

It has been thought that arrangements were completed with the Commonwealth Government for the lease of 71 A.C.H. at Northam, to be used a tuberculosis hospital pending the building of a new hospital in Perth. It now appears that the Commonwealth Government will not lease the premises, but desires to sell them. As the site and the buildings were really unsuitable for the purpose for which it was intended to use them, their use could have been justified only as a temporary measure pending a new building in Perth. It is considered that it would be most inadvisable to spend money on the purchase of these unsuitable premises when the money could be spent with greater advantage on a permanent hospital in the Metropolitan area.

In any case, however, the nursing staff shortage would have prevented increasing the number of beds occupied. It is hoped to remedy this position by training a new class of nurse—tuberculosis nurse—both male and female.

Increasing experience in the expansion of the surgical treatment of the disease enables one to reassert strongly the necessity of placing the tuberculosis hospital in Perth, and the present shortage of beds makes this matter one of urgency if the problem of tuberculosis is to be fundamentally tackled in the near future. A hospital situated in the Metropolitan area would be much easier to staff than one of equal size in the country.

3. *Rehabilitation and After-Care.*

(a) *Colony.*—The Colony has had a fairly successful year, but its activity has been limited by our inability to erect new buildings. Financial particulars of the year's activities will be dealt with later.

A further handicap which has been emphasised repeatedly is the condition attached to the granting of an Invalid Pension that a single man may not earn more than 12s. 6d., and a married man 25s. per week. This provision completely ignores the fact that many tuberculous persons are capable of part-time work but incapable of a full day's work. They are condemned to live on an inadequate pension when an alteration in the regulations could quite easily permit them to earn a partial wage to augment their pension. The refusal of the Commonwealth Government to adopt this very necessary concession perpetuates the existence of a class of professional pensioner, instead of encouraging part-time work which is beneficial to the patient and the community. This handicap is also being experienced in South Australia where work of a similar nature is being organised. The need for amending these regulations is strongly urged yet again.

(b) *Rehabilitation of Patients on Discharge.*—Rehabilitation should commence when the patient is admitted to the hospital or sanatorium. This requires trained staff and the process should be continuous right throughout treatment and after discharge. There will be a need for the appointment of a committee to place ex-patients in employment. This committee might well have on it representatives of employers, trade unions and the Public Health Department. At the present, a policy of employing as many ex-patients as possible on the staff of the Sanatorium is being followed.

So far, the emphasis has been placed on the difficulties of the carrying out of a programme. The question might be asked—what are the immediate prospects ? It is gratifying to note that Cabinet has approved in principle of the complete programme which was submitted to the Government, and steps are now being taken to adopt those parts of the programme that are feasible in the circumstances. On the credit side we have the appointments of Dr. King and Dr. Elphick ; it is anticipated that the latter will commence his duty as Deputy Medical Superintendent at the Sanatorium in April, 1947. This will allow the writer to spend more of his time in Perth directing and organising the campaign as a whole.

Can a programme of mass radiography proceed with what is regarded as an insufficient number of beds ? This question may be answered with a decided affirmative. It is estimated that at least three beds are necessary per annual death, and more are desirable. In Western Australia there are on an average 170 annual deaths, and, therefore, at least 510 beds are necessary for the treatment and isolation of cases of tuberculosis. At present there are 360, including Repatriation beds.

A similar problem exists in other States of the Commonwealth, as well as in other countries. Yet active case-finding programmes using mass radiography are in operation in Britain, Europe, Canada, U.S.A., as well as New South Wales, Victoria, and Tasmania.

This question has been exhaustively investigated by Dr. Hilleboe, Assistant Surgeon General, Bureau of State Services, Washington, U.S.A., whose reports crystallise the ideas of most workers in tuberculosis. He has stated certain salient principles, some of which may be quoted. The protection of the health of the community takes precedence over the health of any individual. Thus, if there is a shortage of hospital beds for cases of tuberculosis, it is necessary to establish priorities for admission. Isolation is of more importance than treatment ; the positive sputum (*i.e.*, infectious) case must be hospitalised to prevent spread of the disease, and the earlier such cases are found the better. If one can combine isolation of infectious cases with successful treatment, a dual purpose is achieved.

The community benefits more from the isolation of the advanced infectious case than the minimal inactive one. The remediable positive sputum case should be isolated in preference to the irremediable positive sputum case. It is necessary, as a corollary, to provide proper home supervision and isolation of these irremediable cases, and for this purpose an increased staff of visiting nurses is necessary.

The minimal case with laboratory and other evidence of active disease should have equal priority to the advanced remediable case.

An increased turn-over of cases in hospital can be achieved by shortening the period of bed rest with earlier discharge home. This practice results in decreased benefit to the individual case, but in increased benefit to the community.

To sum up. The most effective use of available beds is obtained by using them for those sufferers who spread the disease, and whose disease can be arrested, and for minimal cases with laboratory evidence of active disease. The latter are often healed relatively rapidly and rendered non-infectious. The great majority can be discovered only by routine mass radiography.

The requisites for such a programme are :—

1. An adequate trained medical staff to supervise and control patients on ambulatory and home treatment.
2. An adequate staff of visiting nurses to supervise and inspect home conditions, these nurses being supplied with cars for rapid transport.
3. Greatly increased metropolitan laboratory facilities to determine the infectivity of known cases and those discovered by mass radiography. Within recent years there has been considerable refinement in the laboratory methods for the examination of concentrated specimens of sputum, culture, guinea pig inoculation and blood studies.

These and other authoritative opinions and practices answer the question whether mass radiography with a resulting diagnosis of an increased number of cases should be held up pending the provision of an adequate number of hospital beds with an emphatic " NO." Half a loaf is always better than no bread. It is therefore necessary to urge the need for expanded clinic facilities in the metropolitan and country areas, with mass radiography, laboratory and all necessary facilities. The premises in the Outpatient Department at the Royal Perth Hospital at present in use are quite inadequate.

At this point it is considered appropriate once more to call attention to the lack of real power to compel isolation of infectious cases. A study of family contacts shows on initial examination six per cent. with manifest tuberculosis. The incidence of the disease in domestic contacts is about twelve times higher than that in the general population.

Under the Health Act, an infectious person can be compelled to report at the Sanatorium for examination, but he cannot be compelled to stay. He can, and does, walk out within an hour of admission and a continuous repetition of the process becomes farcical.

It is necessary, as is the case especially in Canada and the U.S.A., to possess, and exercise when necessary, powers of restraint over such cases when admitted to the Sanatorium. The mere possession of such powers is found in practice to be sufficient to induce almost all such infectious cases to submit to isolation without the need arising to exercise them. Such powers are also used in Canada and the U.S.A. for the restraint of recalcitrant patients and those whose behaviour renders them an habitual nuisance to their fellow-patients. At present the only remedy is to discharge them home and to permit them to infect the outside population. A draft of new regulations for this purpose is under consideration.

4. *Protection of Nursing and Medical Staff exposed to risk of Infection in the Sanatorium.*

The incidence of tuberculosis in Sanatorium staff personnel is being rigidly watched. It must not be overlooked that young adults—especially women—are in an age group in which there is a maximum incidence of the disease under normal conditions of life. At the Sanatorium every known method is adopted to prevent nurses from becoming infected. All nurses are investigated exhaustively by radiological and bacteriological methods to detect signs of early disease. This intensive search by refined methods discovers cases in the earliest possible stage. If they were not carried out, the case would be overlooked and either heal spontaneously (if the disease process were slight) or slowly progress over the years if it were more virulent. It is impossible at these early stages of the disease to predict which individual case will heal spontaneously and which will progress ; therefore the practice of treating *all* must be followed.

The incidence of disease is no higher than that observed in other countries where similar measures of control are in force. It is pleasing to record that similar measures are now being used at the Metropolitan public hospitals.

Protection against tuberculosis in staff coming into contact with the disease may be aided by providing a good diet, good living quarters and adequate annual holidays.

5. *Study Leave for Medical Staff.*

Western Australia is an isolated community. Medicine is constantly evolving and methods may become out-moded in a few years. The changing face of tuberculosis control has become more marked within recent years, and new conceptions and methods of diagnosis, treatment and prevention are continuously in progressive development. The manifestations of the disease in different patients are intricately varied and protean. These changes in methods, and the varieties of disease manifestations in different persons, makes tuberculosis one of the most absorbing studies in clinical and social medicine ; " age cannot wither nor custom stale its infinite variety."

It is extremely difficult for medical staff to keep abreast of modern developments without personal contact with other tuberculosis workers outside the State. The reading of journals is not sufficient ; for this reason, regular study leave for medical staff is to be strongly recommended.

6. *Clinic Activities during* 1946.

Royal Perth Hospital.—The anticipated expanded activities of the clinic at the Royal Perth Hospital suffered a severe blow in the death of Dr. Roy Muecke, in February, 1946. Dr. Muecke had just been appointed to the position of Tuberculosis Physician to the Tuberculosis Branch of the Public Health Department, and was shortly to take up his duties, when his sudden death deprived us of his services. Not only did the Tuberculosis Branch feel this acutely, but the State and the community were the poorer for the loss of an extremely able physician and of a man with high purpose, integrity and character. It is considered appropriate to pay a tribute to his memory here.

Dr. Muecke's death put back the clinic work and it was necessary for the writer to continue with these duties, which were expanding every month. Fortunately, Dr. R. R. Anderson, Dr. Muecke's successor as Medical Superintendent of the Royal Perth Hospital, has been of invaluable assistance and his co-operation has been largely instrumental in enabling us to carry on. In April, an innovation was introduced in the appointment of a Public Health Registrar at the Hospital, whose duties included assistance at the clinic as well as the supervisory work of the patients in the wards of the hospital. Acknowledgment should be made of the services of Dr. Audrey Jordon, Dr. Gordon and Dr. McPherson.

The tuberculosis clinic is held in the Outpatient Department of the hospital. I have been able to attend for only one session per week and the numbers of patients attending, although restricted as much as possible, have progressively increased so that as many as 70 attended. Cursory attention only is possible in these circumstances, and patients may be left waiting for hours. In addition, two artificial pneumothorax clinics are held weekly. Pathological and bacteriological examinations are made in the Hospital laboratory, which is, however, understaffed for the routine work of the Hospital. Other arrangements with Dr. Kingsbury at the Public Health Laboratory are being considered.

The time has now come to consider the possibility of acquiring other premises for the clinic ; these could be used in addition for the refill clinic and for mass radiography. Office accommodation for the administrative staff and visiting nurses is most inadequate, and it is highly desirable to house all activities of the Tuberculosis Branch in the one building. The acquisition of such premises is being actively pursued.

The following figures represent a brief summary of the work of the clinic during 1946 :—

No. of attendances (excluding pneumothorax refills)		3,778
No. of artificial pneumothorax refills given		1,454
No. of fluoroscopic examinations		1,589
No. of radiographs taken—		
17in. x 14in.	1,008	
5in. x 4in.	1,274	
		2,282

Fremantle Hospital.—This clinic continued to hold sessions twice a month. In addition, there were two artificial pneumothorax refill sessions every week. The Medical Officer in Charge, Dr. Dalla Torre, has done good work and is to be commended on the expansion of the clinic's activities. In 1945 a Visiting Nurse from the Public Health Department (Miss Birmingham) was attached to the clinic and her assistance in inducing patients and contacts to attend was invaluable.

An indication of the expansion of this clinic is shown by the following figures supplied by Dr. Dalla Torre :—

Year.	1942.	1943.	1944.	1945.	1946.
No. of Sessions held	2	26	26	25	27
No. of Attendances	11	162	235	338	508
No. of New Cases	8	41	42	76	147

Acknowledgments are due to the co-operation of the former Medical Superintendent, Dr. Aberdeen, to the present Superintendent, Dr. Price, and to the Honorary and Resident Medical Staff of the Fremantle Hospital.

Kalgoorlie Hospital.—Dr. Webster, who has continued with his good work at the Kalgoorlie Clinic during 1946, reports as follows :—

Total number of new cases attending (including 60 contacts)	130
Total number of new cases found to have tuberculosis	30
Total number of attendances at clinic	447
Total number of X-ray films taken	131
Total number of fluoroscopic examinations	384
Total number of artificial pneumothorax refills	56

Bunbury Clinic.—Dr. Lawson-Smith has completed another year of satisfactory work at the Bunbury Clinic at St. John of God Hospital. He reports as follows :—

Total No. of new cases attending (including 77 contacts)	323
Total No. of new cases found to have tuberculosis	5
Total No. of attendances at the clinic	502
Total No. of X-ray films taken	44
Total No. of artificial pneumothorax refills	91

There were also many fluoroscopic examinations but actual number not recorded.

7. *State Sanatorium, Wooroloo.*

Buildings.—Shortage of labour and materials have prevented major work. Plans have been completed for a house for the newly appointed Deputy Medical Superintendent and for six cottages for other staff (orderlies). It is hoped to complete these in 1947. Various minor renovations have been carried out generally, but the long overdue complete renovation of the whole of the premises has not been possible.

Co-operation with the Services.—At the beginning of January, 1946, all Service patients in the Sanatorium were transferred to 71 A.C.H., Northam, which was used throughout the year as a Tuberculosis Hospital for Service cases. The increase in the numbers of these cases had made it impossible to accommodate them all at Wooroloo. The writer attended the Northam Hospital weekly as a Consultant, and as a result of the fortunate choice of medical personnel by the Army authorities to staff the hospital, and the interest shown by the present D.D.M.S. (Col. le Souef) and his predecessor (Col. Trethowan) and Col. H. Wunderly from Victoria, a good unit was established and did first-class work. Its subsequent transfer to 110 A.G.H. at Hollywood, enabled the Army to hand over to the Repatriation Commission, a well staffed, well organised tuberculosis hospital unit.

The fact that Repatriation cases in Western Australia are receiving modern treatment and that close co-operation exists with the Tuberculosis Branch is very gratifying to the Public Health Department. Some Repatriation cases continue to be treated at Wooroloo.

Staff.

Medical.—In July, Dr. D. Letham was appointed to the staff. His interest in the pathological and bacteriological department has expanded its value appreciably. Our sympathy is due to Dr. Guinan who has been absent on sick leave since September. His radiological work has been of a high order, but has been ably carried on by Dr. Greer. Towards the end of the year we were fortunate in appointing Captain R. Elphick to the vacancy of Deputy Medical Superintendent : he will commence duty early in 1947, when he is discharged from the Army, in which Service he has had extensive experience of the disease at 71 A.C.H., Northam, 110 A.G.H., Hollywood and 113 A.G.H., Heidelberg, Victoria.

The policy of engaging the Resident Medical Officers of the Royal Perth Hospital for one month each has been continued and is of mutual benefit. Mention should be made of Dr. Nell and Dr. Slonim, who each stayed for two months and rendered valuable service.

Consultant.—The consultant staff suffered a great loss in the death of Dr. Roy Muecke, already mentioned. An additional appointment in Dr. L. le Souef as Honorary Consulting Surgeon was made. Mr. F. J. Clark, Dr. Gordon Hislop and Dr. G. Troup and Dr. A. N. Kingsbury continue to give invaluable service. These gentlemen attend the monthly staff conferences and with them frequently come other Perth Medical men who are interested in tuberculosis. The Army Medical staff from 71 A.C.H., Northam (Service Tuberculosis Hospital) and, after its transfer to 110 A.G.H., Hollywood, of the latter hospital, also attend regularly. These regular staff conferences and discussions are very stimulating and instructive : grateful acknowledgment is due to all professional colleagues who attend and make them successful. It is unfortunate that the distance from Perth (36 miles) makes these conferences all too infrequent. Constant contact between the thoracic surgeon and the patients is necessary if the best results are to be obtained.

Nursing.—In 1946 the shortage of trained nurses on the staff became more marked. In addition, the use of the Sanatorium in the training of nurses in the Government hospitals ceased in September. The new system of training tuberculosis nurses has not yet come into force so that no relief can be expected yet. Some of our existing trainees have decided to stay on and complete their two years to become tuberculosis nurses, so that we have not been deprived of their services. Male nursing orderlies have been used extensively in the male wards, but a great difficulty is that there is no accommodation for married men. The possibility of erecting temporary quarters for married men is being explored. The great shortage of trained nurses makes the supervision of untrained staff almost impossible.

The response of those trained nurses that we have had on our Sanatorium staff to their trying and difficult task cannot be too highly praised, and they and the Matron, Miss Lockhead, together with the untrained staff, deserve the warmest thanks of the community for carrying on their invaluable work under conditions of desperate difficulty. It is anticipated that the new system of training tuberculosis nurses will ease the staffing difficulties of the Sanatorium appreciably during 1947.

Acknowledgements should be made of the devoted services of the following Sisters, who ceased duty in 1946 :

Assistant Matron Taylor.
Sister Phillips.
Sister Paterson.
Sister Dawson.
Sister Campbell.
Sister O'Brien.
Sister Bagshaw.
Sister Leonnard.
Sister Trigg.
Sister Fisher.

Sister Coffey retired during the year on superannuation after thirteen years service.

Secretarial.—The Sanatorium continues to be fortunate in its office staff under the direction of Mr. Stansfield. No changes have been made in personnel, all of whom have given of their very best. Rising costs of administration have been inevitable, and in order to exercise as much control as possible, Mr. Stansfield has introduced a closer scrutiny into expenditures under various departmental headings. This has meant a heavy burden of work for him but it is anticipated that it will result in appreciable economy.

Laboratory.—As has been mentioned, the laboratory is now under the control of Dr. Letham, and under his direction the work has been considerably expanded. Mrs. Greer resigned early in the year. The appointment of Miss Gillam and Miss MacDonald has strengthened the staff and enabled extensions in bacteriological and haematological techniques to be introduced. Early in the year a change was made to a considerably larger room in the main administrative block ; without this, the increased laboratory work would not have been possible.

Engineering.—Progressive development of the plan for improving the grounds, mentioned in the report for 1945, has been carried out by the ground staff with gratifying results. Money is well spent on this very necessary feature of a sanatorium. Mr. L. Johnston resigned during the year after ten years service.

Kitchen.—Certain improvements were made during the year in the kitchen. These included the installation of badly needed stainless steel sinks and repairs to the cooking ranges. The staff continues to give good service and we are fortunate in our first cook, Mr. Cornford. During the year, Mr. H. Appleton returned to duty after Army service, only to go off later on sick leave, as also did Mr. J. Parker.

Treatment.—

Year.	No. of Admissions.	No. of Discharges.	No. of Deaths.
1944	238	206	55
1945	230	166	51
1946	214	167	46

In the report for 1945, an indication was given of the type of treatment carried out. Emphasis was placed on the need for prolonged rest in bed (if the bed and staff positions will permit), combined with intensive collapse therapy. This policy has been continued in 1946.

Every case admitted is reviewed in conference by the whole medical staff and the indications for and against collapse treatment carefully assessed and decided upon. A selection of cases is made for review by the consulting surgical team in conjunction with the Sanatorium staff at the monthly meeting of the consulting staff. By this method, every case is periodically reviewed and treatment decided accordingly.

Following are particulars of surgical procedures performed on cases of pulmonary tuberculosis at the Royal Perth Hospital during the year :

Internal Pneumolysis	45
Thoracoscopy only	19
Thoracoplasty	10 (18 stages)
Phrenic nerve operations....	19
Bronchoscopies	18

X-Ray Department.

No. of radiographs taken	1,207
No. of fluoroscopic examinations	5,382

Pathological and Bacteriological Laboratory.—A policy of reducing the number of specimens examined by often repeated examinations of direct smears has been altered to a fewer number of examinations of concentrated 24 and 48 hour speciments, with culture if negative. This has resulted in a very important revaluation of the indications for treatment and of the results of treatment. The finding of tubercle bacilli—often only after an exhaustive search—in the sputum or gastric contents may radically alter a line of treatment or necessitate a prolongation of bed rest. In common with other sanatoria in other countries, it has been confirmed that many cases that might have been discharged as " sputum negative," were not negative at all, but were excreting bacilli, even though in relatively small numbers. As a protection to their potential contacts subsequent to their discharge, and as a public health measure in the prevention of the spread of infection, these refined bacteriological methods are of great importance, and their necessity has been adequately proven.

The following is a summary of the laboratory work for the years 1944, 1945 and 1946 :

——	1944.	1945.	1946.
Sputum for tubercle bacilli—direct smear	3,363	4,007	1,707
Sputum for tubercle bacilli—concentration method	287	453	1,173
Cultures for tubercle bacilli	30	69	388
Bacteriological examinations	100	74	73
Blood sedimentation rates	300	82	273
Blood Counts	42	74	360
Pleural fluid examinations (chemical and microscopical)	84	96	94
Urine examinations (chemical and microscopical)	277	102	164
Smears for Leprosy bacilli	15	18	21
Totals	4,498	4,875	4,253

Dr. A Neave Kingsbury, the Consulting Bacteriologist, of the Public Health Laboratory, has, as in previous years, continued to give valued advice and has also performed routine Wassermann and serological examinations, guinea-pig inoculations, various histological examinations and cultures.

Leprosarium.—Four lepers continue in residence. Certain alterations to staff quarters and increased facilities for clinical examination and treatment are projected.

Dairy Farm.—The activities of the dairy farm were handicapped by a particularly bad season. Heavy and untimely rain severely damaged and destroyed crops, and as a result the profit of £486 of the previous year was converted to a loss of £482 for the current year. Nevertheless, a high standard of cleanliness and efficiency is maintained by the manager, Mr. Wallace, and his staff.

Poultry Farm.—The poultry farm continued to operate satisfactorily. The profit during the year was smaller, epidemic being a contributing cause. This is now under control and the future is viewed with confidence. Mr. S. Roberts continued in charge.

During the early part of 1946, I continued in the office of Acting Principal Medical Officer, relinquishing it when you assumed the responsibilities of Commissioner of Public Health.

I wish here to record my gratitude and appreciation of the practical understanding you have shown throughout the year of the problems and needs of the Tuberculosis Branch of your Department. This appreciation extends to the Under Secretary, Mr. H. T. Stitfold, to the Assistant Under Secretaries, Messrs. Thurkle and Devereux, and to the officers of the Public Health Department.

The Minister of Health, Mr. Nulsen, and the State Government, as in previous years, proved to be receptive and encouraging.

Finally, it is wished to express again gratitude to the Matron of the Sanatorium, Miss Lochhead, and to her nursing staff for their heroic efforts during the year, which enabled us to continue to admit and treat patients under conditions which might pardonably have daunted their stout hearts, to my professional colleagues on the Sanatorium staff for their unflagging loyalty, to the administrative and other staff, and to the patients themselves, for their co-operation, patience and understanding.

LINLEY HENZELL, M.D., London,
B.S., B.Sc., D.P.H,

REPORT OF MEDICAL SUPERVISOR OF INFANT HEALTH.

This year has been one of the most important in the history of Infant Health work in Western Australia because as from 1st July, 1945, the Government, together with financial assistance from the Road Boards and the Lotteries Commission, have assumed the responsibility for the payment of the Nurses' salaries together with the cost of transport.

The fact that the Local Committees who hitherto had to find the vast bulk of the Nurses' salaries, have been relieved of this responsibility, has given an enormous fillip to the work, the consequence being that many districts have been writing in to ask if they can establish an Infant Health Centre—far more even that we can supply Nurses for, and in some cases, of course, the request was not justified as there were insufficient babies to warrant the expenditure.

This action of the Government in assuming the responsibility for the Nurses' salary meant, of course, that the Nurses became Government employees and the Department therefore had the ability to alter, add to, or subtract from districts, which ever was for the benefit of the work.

The following new Centre was established, viz., Melville Infant Health Centre. It was found that the Fremantle and East Fremantle Centres were far too big, consequently it was decided to make three Centres out of these two, hence the new one which is now known as the Melville Centre.

The following sub-centres were established :

Nannup from Bridgetown.
Meckering from Northam.
Graylands from Claremont.
Meekatharra from Wiluna.
Dongara from Geraldton.
Rivervale from Victoria Park.

Travelling Centres.—Many districts started to work for Travelling Centres. These Travelling Centres have since commenced, but do not come within the scope of the year under review, but I am mentioning to you that it was during this period that all the ground work was laid, and this was a very big step forward and would not have come about except for Government control and Departmental enthusiasm.

Mothercraft Lectures.—A special highly trained Nurse was appointed to give mothercraft lectures throughout all the big girls' colleges and Government schools such as Perth Girls' School, Modern School, etc.

This Nurse also gave weekly broadcast talks and wrote fortnightly newspaper articles. Also, arrangements were made for the Infant Health Nurses in the various big towns to give the same course of lectures at the high schools in their respective towns. All the High Schools now are being given the opportunity of having these lectures delivered to their older girls. The towns concerned are : Geraldton, Northam, Bunbury Kalgoorlie and Albany.

Relieving Nurse.—When the Government took over, it was decided to appoint a Nurse for the sole purpose of relieving the Sisters during their holiday period. It had been found very difficult to procure satisfactory relief at this time, and furthermore, Nurses were being put on who, in some cases, did not know our methods and who did not have the necessary qualifications. Therefore, it was decided to appoint a highly trained Nurse who would do nothing but relieve at the Centres during the Sisters' holidays. This has proved most satisfactory, but she cannot do all the relief work, consequently we still have to call on outside help from time to time.

Centres.

Total number of Infant Health Centres—1946	31
Total number of Infant Health Sub-centres—1946	72
Total number of Infant Health Centres opened during 1946	3
Bicton, Moora, Busselton.	
Total number of Infant Health Sub-centres opened during 1946	22
Maida Vale, Mend's Street, South Perth, Belmont, Rivervale, Canning Bridge, Watheroo, Dandaragan, Miling, Pithara, Dalwallinu, Wubin, Ballidu, Wongan Hills, Piawaning, Calingiri, Kudarup, Augusta Bridge, Margaret River, Cowaramup, Donnybrook, Capel, Boyanup.	
Total number of Infant Health Centres closed during 1946	1 temporarily
Total number of Infant Health Sub-centres closed during 1946	Nil

Correspondence Nurse.

Individual Mothers on the Roll	1,549
New Mothers	1,187
Expectant Mothers on the Roll	210
New Expectant Mothers	199
Total number Consultations re Expectant Mothers	502
Total number of letters received	4,253
Total number of letters written	4,386
Visits of Mothers to Centre	859
Sets of Patterns sent	160
First Circular Letters sent	1,372
Second Circular Letters sent	987
Telephone calls approximately	732

E. M. STANG,
Medical Supervisor of Infant Health.

REPORT OF THE SENIOR DENTAL OFFICER.

The Commissioner of Public Health.

Although the nominal staff is 4, I was the only one to work continuously throughout the year ; Mr. Turnbull was still in the Army, Miss Ross commenced long service leave at the beginning of September, while the position rendered vacant in 1945 by the resignation of Mr. Cole was not filled until July, 1946.

During the period under review 27 schools were visited ; that is not a large number in comparison with previous reports even allowing for the fact that these latter covered periods of two years, but the following two points must be considered.

(1) The staff was much below full strength.
(2) Several of the schools visited were large and up to 8 weeks were necessary at each to complete the work offering.

Particulars in regard to the children seen are as follows :

Number treated by school dentists with the permission of parents	1,996
Number who needed no attention	319
Number who were to be done privately	263
Number of those whose parents did not reply to notices	275
So total number examined was	2,653

Operations performed were as follows :

Silver Amalgam fillings	626
Copper Amalgam fillings	896
Cement fillings	1,038
Porcelain fillings	125
Silver Nitrate Treatments	859
Other treatments	704
Extractions	2,940
Prophylaxis	207

During school holidays various Orphanages and institutions were visited as well as Native Settlements at Moore River, Carrolup and New Norcia. Several visits were made to " Sunset " in order to do extractions or make dentures for men who were bed-ridden, or otherwise not well enough to be taken into the Dental Hospital.

Regular Saturday morning visits were made to Claremont Mental Hospital ; details in regard to this Institution are as follows :

Number of patients seen	521
New dentures made	38
Dentures repaired	47
Prophylaxis	6
Extractions	499

In eleven cases the extractions were done under general anaesthetics administered by the Medical Officers ; the other cases were done, of course, with Local anaesthetics.

You understand, of course, that the conditions under which we work are far removed from the pleasant surrounding of private practice ; I would therefore like to take this opportunity of thanking the great majority of school head teachers and heads of Institutions who do their best to make us as comfortable as possible under the circumstances ; in a lot of cases the teachers personally inconvenience themselves for the duration of our visit so that our work can be made easier.

A. G. McKENNA,
Senior Dental Officer.

APPENDIX V.

MEAT INSPECTION.

Animals Slaughtered.		Carcases Condemned.															Part Carcases Condemned.							Organs Condemned.												
		Emaciation.	Icterus.	Immaturity.	Moribund.	Piroplasmosis.	Unmarketable.	Pyrexia.	Pleuro-pneumonia.	Sepsis.	Traumatism.	Tuberculosis.	Cysticercus Ovis.	Actinomycosis.	Caseous-Lymphadenitis.	Totals.	Abscess.	Actinomycosis.	Traumatism.	Tuberculosis.	Caseous-Lymphadenitis.	Unmarketable.	Totals.	Abscess.	Fatty Infiltration.	Melanosis.	Necrosis.	Parasitic Cysts.	Pleuro-Pneumonia.	Inflammations.	Traumatism.	Tuberculosis.	Actinomycosis.	Angioma.	Cirrhosis.	Totals.
Fremantle District (including Watson's Bacon Factory).																																				
Cattle	14,110	30	....	....	7	6	....	5	1	14	7	116	....	1	....	187	....	690	12	234	....	....	936	115	258	....	....	333	5	....	....	19	17	284	3	1,034
Calves	710	....	....	11	....	....	4	....	....	....	....	....	....	....	....	15	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	150,599	102	14	....	27	....	....	....	....	23	10	....	1	....	17	194	....	....	1	....	....	1	2	34	959	25	6	1,698	....	....	....	....	....	4	23	2,749
Pigs	78,486	1	....	10	1	....	....	54	....	25	....	440	....	....	....	531	953	....	217	613	....	7	1,790	....	....	....	....	....	....	....	....	....	....	....	....	....
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	927	....	....	....	....	....	....	2,728	....	....	....	....	....	....	....	....	....	....	....	....	3,783
Midland Junction Abattoirs (including Foggitt Jones & Co., Bacon Factory)																																				
Cattle	35,195	17	....	....	6	7	....	10	3	52	23	213	....	1	....	332	34	664	21	299	....	....	1,018	123	164	6	27	81	11	....	14	68	34	138	70	662
Calves	2,474	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	466,779	1,794	34	....	56	....	30	9	....	12	6	....	3	....	7	2,021	....	....	13	....	62	132	2,228	55	166	105	....	2,737	....	....	....	....	....	28	2	3,093
Pigs	47,597	....	4	....	....	....	....	7	....	19	1	174	....	....	....	215	54	....	42	261	....	2	374	....	147	....	3,510	313	....	5,970	....	12	....	....	172	10,124
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	2,569	....	....	....	....	....	....	3,621	....	....	....	....	....	....	....	....	....	....	....	....	13,879
Kalgoorlie District.																																				
Cattle	4,656	....	....	....	2	....	....	....	....	....	....	3	....	....	....	5	13	17	10	29	....	....	69	81	22	6	....	89	....	39	....	61	28	15	22	363
Calves	70	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	47,437	....	....	....	11	....	....	4	....	3	11	....	....	....	....	29	....	....	4	....	22	13	39	....	90	7	....	1,066	....	23	....	....	....	....	80	1,266
Pigs	982	....	....	....	....	....	....	....	....	1	....	2	....	....	....	3	....	....	....	4	....	....	4	....	....	....	57	....	....	88	....	....	....	....	....	145
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	37	....	....	....	....	....	....	112	....	....	....	....	....	....	....	....	....	....	....	....	1,774
Perth City Meat Markets (Carcases brought in).																																				
Cattle	638	1	....	....	....	....	4	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Calves	16,131	....	....	59	....	....	257	....	....	....	2	....	....	....	....	318	....	....	....	....	....	5	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	249	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Pigs	284	....	1	....	....	....	....	8	....	....	....	4	....	....	....	13	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	336	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Fremantle Meat Markets (Carcases brought in).																																				
Cattle	31	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Calves	1,577	....	....	....	....	41	....	....	....	....	....	....	....	....	....	41	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	198	....	....	....	....	5	....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	8	....	....	....	....	....	....	....	....	8
Pigs	 27	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	46	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	8
Combined condemnations of all Country Districts including—Northam, Busselton, Narrogin, Albany, Geraldton, Katanning, York, Wagin, Bunbury, Rockingham, Merredin																																				
Cattle ...	*9,506	3	....	....	....	....	....	5	....	3	2	15	....	....	....	28	....	63	11	30	....	....	104	34	12	....	11	185	....	....	....	....	....	25	4	271
Calves	*1,736	2	....	7	....	....	....	....	....	2	....	....	....	....	....	11	....	....	....	....	....	3	3	....	....	....	....	....	....	....	....	....	....	....	....	....
Sheep	*94,464	183	7	....	8	....	....	6	....	....	3	....	....	....	21	228	....	....	12	....	39	....	51	58	....	25	....	3,674	....	....	....	....	....	....	55	3,812
Pigs	*3,111	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	118	10	....	....	2	....	....	....	31	161
		....	....	....	....	....	....	....	....	....	....	....	....	....	....	267	....	....	....	....	....	....	158	....	....	....	....	....	....	....	....	....	....	....	....	4,244

* Combined totals of condemnations and animals slaughtered in all Country Districts as set out above.

Total Animals Slaughtered and Inspected in Country Districts where Meat Inspection is carried out.

District.	Cattle.	Calves.	Sheep.	Pigs.	Totals.
Northam	1,193	210	13,361	317	15,081
Busselton	845	91	4,955	203	6,094
Narrogin	723	71	6,220	205	7,219
Albany	1,495	266	15,791	769	18,315
Geraldton	1,266	162	15,344	445	17,217
Katanning	628	98	4,967	90	5,783
York	487	56	4,958	140	5,641
Merredin	810	61	8,572	133	9,576
Bunbury	1,718	684	14,834	716	17,952
Rockingham	217	37	3,911	35	4,200
Wagin	124	....	....	58	1,751
	....	....	....	....	108,829

APPENDIX VI.

NOTIFICATION OF EACH TYPE OF INFECTIOUS DISEASE RECEIVED BY THE DEPARTMENT OF PUBLIC HEALTH FOR WEEK OF THE YEAR ENDED 31/12/46.

Week	Undulant Fever	Malaria	Typhoid	Diphtheria	Scarlet Fever	Pulmonary T.B.	Other T.B.	Murine Typhus	Puerperal Fever	Leprosy	Dysentery	Infantile Paralysis	Cerebro-spinal Meningitis	Lethargic Encephalitis	Rubella
1	...	...	...	13	1	3	...	6	3	...	...	...	3	...	1
2	...	...	...	13	2	4	...	...	...	...	...	...	...	...	...
3	...	...	3	17	3	1	...	...	...	...	...	...	1	1	1
4	...	...	1	9	1	10	...	...	1	...	...	...	1	...	...
5	...	...	1	18	4	6	...	...	...	...	...	...	...	...	2
6	...	...	...	11	1	3	...	...	...	...	...	...	...	...	...
7	...	...	1	11	1	7	...	2	1	...	...	...	2	...	1
8	...	...	2	16	...	9	...	...	...	...	...	...	1	...	1
9	...	...	1	6	4	6	2	6	...	...	1	...	2	...	2
10	...	...	...	10	6	3	...	1	...	...	...	...	...	...	1
11	...	...	...	7	3	11	1	2	...	...	...	...	1	...	...
12	...	...	...	10	2	1	...	5	...	...	...	...	...	...	...
13	...	...	...	5	5	3	4	3	...	...	...	...	1	...	2
14	...	...	1	6	1	1	1	2	...	...	...	...	1	...	...
15	...	...	1	4	3	3	6	1	...	...	1	...	1	...	4
16	...	...	...	9	1	5	4	1	...	...	1	...	...	...	8
17	...	...	...	8	1	5	...	...	...	...	...	...	1	...	1
18	1	...	1	8	2	11	...	2	...	...	...	...	...	...	1
19	...	...	2	4	1	32	...	3	...	...	...	...	1	...	...
20	...	...	...	6	1	8	...	12	1	...	...	1	1	...	...
21	...	...	1	5	...	5	5	2	...	...	...	...	...	...	...
22	...	...	...	6	2	...	...	2	...	6	...	...	...	...	...
23	...	...	...	11	6	9	...	3	...	...	...	...	...	...	1
24	...	...	...	5	1	3	...	...	1	...	...	...	...	...	...
25	1	...	...	7	...	9	...	1	...	...	...	...	1	...	...
26	...	...	...	8	1	12	...	...	1	...	3	...	1	...	...
27	...	...	1	10	1	5	...	...	...	1	...	...	...	...	...
28	...	...	...	10	2	6	...	1	...	...	...	...	2	...	...
29	...	...	...	9	...	9	...	2	...	...	...	...	2	...	...
30	...	...	...	8	1	5	...	...	...	...	1	...	1	...	...
31	...	1	...	8	...	11	1	2	...	2	1	...	...	...	...
32	...	...	...	7	...	4	3	3	...	...	...	...	2	...	...
33	...	...	...	8	...	10	4	1	...	...	...	...	...	...	...
34	...	...	...	6	2	10	1	3	...	...	...	...	...	...	...
35	...	...	...	9	3	3	1	...	...	6	...	...	2	...	...
36	...	...	1	9	1	5	3	1	...	...	...	...	1	...	...
37	...	...	...	1	1	2	2	2	...	...	1	...	2	...	...
38	...	...	...	2	...	8	7	1	...	...	1	1	...	...	...
39	...	...	...	1	1	7	1	1	...	...	...	...	...	...	...
40	2	...	...	7	...	8	...	3	...	...	...	...	...	...	...
41	...	...	...	3	...	6	2	1	...	...	...	...	...	...	...
42	1	...	...	4	2	10	2	...	...	...	...	...	...	...	1
43	...	...	1	6	1	5	...	1	...	...	...	...	...	...	...
44	...	...	...	3	...	4	2	1	...	2	...	...	5	...	...
45	...	...	1	5	2	8	1	...	...	...	...	...	...	...	...
46	...	...	...	2	5	4	...	...	...	...	...	...	...	...	...
47	...	...	...	4	2	5	6	1	...	...	...	...	...	...	...
48	1	...	...	5	3	4	...	1	...	...	...	...	...	...	...
49	...	...	...	4	3	8	4	...	...	...	...	...	...	...	...
50	...	...	...	4	...	5	...	1	...	10	...	...	...	...	...
51	...	...	...	6	3	19	4	...	...	...	2	...	1	...	1
52	...	...	...	6	2	2	2	2	...	...	1	...	...	...	...
Total	6	1	19	380	88	343	69	72	8	27	13	2	37	1	28

APPENDIX VII.

Western Australia

DIPHTHERIA, 1922-1946.

	Population (1,000s)	Cases of Diphtheria	Cases per 100,000 Population	Case Mortality %
1922	339	577	170	3·6
1923	353	504	142	3·5
1924	364	511	140	2·7
1925	377	354	93	1·7
1926	385	256	66	4·3
1927	399	273	68	2·9
1928	414	639	154	2·0
1929	426	539	126	6·0
1930	431	1,045	242	4·1
1931	433	452	104	4·2
1932	436	664	152	3·0
1933	440	848	192	2·4
Mass Immunisation commenced :				
1934	442	974	220	3·7
1935	447	1,308	293	2·6
1936	451	792	175	4·54
1937	457	1,166	255	3·34
1938	462	921	199	4·44
1939	468	610	130	4·40
1940	472	583	123	3·75
1941	474	674	142	3·00
1942	479	748	156	5·48
1943	482	755	156	5·03
1944	488	491	100	4·80
1945	490	425	86	4·70
1946	494	380	77	2·89

APPENDIX VIII.

Table showing the Incidence of Infectious Diseases in each Statistical District for the Year ended 31/12/46.

District	Ankylostomiasis	Amoebic Dysentery	Bacillary Dysentery	Dengue Fever	Diphtheria	C.S.M.	Leprosy	Lethargic Encephalitis	Malaria
Albany	...	...	...	...	...	...	...	...	...
Armadale	...	...	...	...	4	...	...	...	...
Augusta	...	...	...	...	1	...	...	...	..
Balingup	...	...	...	...	2	...	...	...	..
Bassendean	...	...	...	...	5	...	...	...	...
Bayswater	...	...	...	...	17	2	...	...	...
Belmont	...	...	...	...	5	1	...	...	...
Beverley	...	...	...	...	1	...	...	...	...
Boulder	...	...	...	...	4	...	...	...	...
Bridgetown	...	...	...	...	9	...	...	...	...
Brookton	...	...	...	...	...	...	...	...	...
Broomehill	...	...	...	...	...	...	...	...	...
Bunbury	...	...	...	...	6	1	...	...	...
Busselton	...	...	...	...	1	...	...	...	...
Canning	...	...	...	...	12	1	...	...	...
Carnamah	...	...	...	...	1	...	...	...	...
Claremont	...	...	...	...	6	...	...	...	...
Collie	...	...	...	...	5	4	...	...	...
Coolgardie	...	...	...	...	...	...	...	...	...
Cottesloe	...	1	...	...	10	1	...	...	...
Cuballing	...	...	...	...	...	...	...	...	...
Cue	...	...	...	...	...	...	...	...	...
Dardanup	...	...	...	...	...	...	...	...	...
Darling Range	...	...	...	...	23	...	...	...	...
Denmark	...	...	...	...	...	2	...	...	...
Drakesbrook	...	...	...	...	...	...	...	...	...
Dumbleyung	...	...	...	...	...	...	...	...	...
Dundas	...	...	...	...	1	...	...	...	...
East Fremantle	...	...	...	...	5	1	...	...	...
Fremantle	...	...	...	...	12	2	...	...	...
Geraldton	...	1	...	...	...	1	...	...	...
Gnowangerup	...	...	...	...	2	...	...	...	...
Gosnells	...	...	...	...	1	...	...	...	...
Guildford	...	...	...	...	10	...	...	...	...
Harvey	...	...	...	...	4	...	...	...	...
Kalgoorlie	...	1	...	...	12	...	...	...	...
Katanning	...	...	...	...	2	...	...	...	...
Kellerberrin	...	...	...	...	...	...	...	...	...
Kondinin	...	...	...	...	3	...	...	...	...
Leonora	...	...	...	...	...	1	...	...	...
Manjimup	...	...	...	...	...	...	...	...	...
Marbel Bar	...	...	...	...	...	...	...	...	...
Marradong	...	...	...	...	...	...	...	...	...
Meckering	...	...	...	...	1	...	...	...	...
Melville	...	...	...	...	2	1	...	...	...
Merredin	...	...	...	...	...	...	...	...	...
Midland Junction	...	1	...	...	8	1	...	...	...
Moora	...	...	...	...	3	...	...	...	...
Mosman Park	...	...	...	...	6	1	...	...	...
Mukinbudin	...	...	...	...	...	...	...	...	...
Mullewa	...	...	1	...	...	1	...	...	...
Mundaring	...	...	...	...	14	...	...	...	...
Murray	...	...	...	...	4	...	...	...	...
Nannup	...	...	...	...	2	...	...	...	...
Narrogin	...	...	...	...	2	...	...	...	...
Nedlands	...	...	...	...	9	...	...	...	...
Northam	...	...	...	...	6	...	...	...	...
Northampton	...	...	...	...	5	1	...	...	...
North Fremantle	...	...	...	...	3	...	...	...	...
Peppermint Grove	...	...	...	...	...	...	...	...	...
Perth City	...	...	...	...	72	8	...	...	...
Perth Road Bd.	...	1	...	...	15	3	...	...	...
Pingelly	...	...	...	...	1	...	...	...	...
Perenjori	...	...	...	...	1	...	...	...	...
Preston	...	...	...	...	...	...	...	...	...
Quairading	...	...	...	...	3	...	...	...	...
Rockingham	...	...	...	...	1	...	...	...	...
Serpentine	...	...	...	...	3	...	...	...	...
South Perth	...	...	...	...	16	1	...	...	1
Subiaco	1	...	...	...	16	1	...	...	...
Sussex	...	...	...	...	...	...	...	...	...
Swan	...	...	...	...	2	...	...	...	...
Three Springs	...	...	...	...	...	...	...	...	...
West Arthur	...	...	...	...	...	...	...	...	...
West Kimberley	...	...	...	...	...	...	27	...	...
Wickepin	...	...	...	...	...	...	...	...	...
Williams	...	...	...	...	...	...	...	...	...
Wiluna	...	...	...	...	3	...	...	...	...
York	...	...	...	...	...	1	...	1	...
	1	5	1	...	365	36	27	1	1
Services cases	6	6	...	...	14	...	...	...	...
TOTAL	7	11	1	...	379	36	27	1	1

Table Showing the Incidence of Infectious Diseases in each Statistical District for the year ended 31/12/'46.

District	Puerperal Fever	Poliomyelitis	Scarlet Fever	Typhoid Fever	Typhus Fever	P.T.B.	Other T.B.	Undulant Fever	Rubella	Tetanus Neonatorum
Albany	...	...	...	1	1	2	...	...	...	...
Armadale	...	...	...	...	...	...	...	...	...	...
Augusta	...	...	...	...	...	...	...	...	...	...
Balingup	...	...	...	...	...	...	...	...	...	...
Bassendean...	...	...	...	...	...	2	...	...	...	...
Bayswater	...	...	...	...	...	2	2	...	...	...
Belmont	...	...	...	...	...	1	...	...	...	...
Beverley	...	...	...	...	...	...	...	...	...	...
Boulder	...	...	...	...	...	2	...	...	...	...
Bridgetown	...	...	...	...	...	...	1	...	...	...
Brookton	...	...	...	...	...	1	...	...	...	...
Broomehill	...	...	...	...	...	1	...	...	...	...
Bunbury	...	...	...	...	...	4	...	...	...	...
Busselton	...	...	...	...	...	2	...	...	...	...
Canning	...	...	2	...	...	1	...	...	...	...
Carnamah	...	...	...	...	...	...	...	...	1	...
Claremont	...	...	1	2	...	4	...	...	...	...
Collie	...	...	2	1	...	1	...	...	1	...
Coolgardie	...	...	1	1	...	...	...	...	...	...
Cottesloe	...	...	...	1	1	6	1	...	...	...
Cuballing	...	...	...	...	1	...	...	...	...	...
Cue	...	...	...	...	...	4	...	...	...	...
Dardanup	...	...	...	...	...	2	...	...	...	...
Darling Range	...	...	1	...	...	3	1	...	...	...
Denmark	...	...	...	...	...	1	...	...	...	...
Drakesbrook	...	...	...	1	...	...	1	...	...	...
Dumbleyung	...	...	...	...	...	1	...	...	...	...
Dundas	...	...	...	...	...	1	...	...	...	...
East Fremantle	...	...	5	...	3	4	...	...	...	...
Fremantle	1	...	2	2	14	13	3	...	3	...
Geraldton	...	...	...	...	...	1	...	...	...	...
Gnowangerup	...	...	2	...	...	...	...	...	...	...
Gosnells	...	...	...	...	...	2	1	...	...	...
Guildford	...	...	...	...	...	2	...	...	...	...
Harvey	...	...	...	...	...	1	...	...	2	...
Kalgoorlie	...	...	4	2	...	21	...	...	...	..
Katanning	...	...	1	...	...	...	...	...	...	...
Kellerberrin	...	...	...	...	...	1	...	...	4	...
Kondinin	...	...	...	...	...	...	...	1	...	...
Leonora	...	...	2	...	...	...	...	...	...	...
Manjimup	...	...	...	...	...	3	1	...	...	...
Marble Bar	1	...	...	...	...	...	...	...	...	...
Marradong	...	1	...	...	...	...	1	...	...	...
Meckering	...	...	...	...	...	2	...	...	1	...
Melville	...	...	...	...	2	3	2	...	...	...
Merredin	...	...	1	...	...	2	...	...	...	...
Midland Junction	...	...	...	...	...	1	2	...	...	...
Mosman Park	...	...	2	...	1	...	1	...	...	...
Moora	...	...	2	...	.	2	...	...	...	...
Mt. Marshall	...	...	...	...	...	...	...	...	...	...
Mukinbudin	...	...	...	...	...	1	...	...	...	...
Mullewa	4	1	...	1	1	1	...	...	...	...
Mundaring	1	...	...	...	...	10	2	...	...	...
Murray	...	...	3	...	...	2	...	...	...	...
Nannup	...	...	...	...	...	...	...	...	...	...
Narrogin	...	...	2	...	...	3	...	2	...	...
Nedlands	...	...	4	3	1	3	...	...	...	...
Northam	...	...	...	...	...	3	...	...	...	...
Northampton	...	...	...	...	4	...	...	...	...	...
North Fremantle	...	...	1	...	...	...	...	...	...	...
Peppermint Grove	...	...	...	...	2	...	...	...	...	...
Perth City	...	...	32	1	22	93	33	2	7	...
Perth Road Bd.	1	...	7	1	5	18	5	...	4	...
Pingelly	...	...	...	...	...	...	...	...	...	...
Perenjori	...	...	...	...	...	1	...	...	...	...
Preston	...	...	...	...	...	1	...	...	...	...
Quairading	...	...	...	...	...	...	...	...	...	...
Rockingham	...	...	...	...	...	...	...	...	...	...
Serpentine	...	...	1	...	...	...	...	...	...	...
South Perth	...	...	5	...	5	12	6	...	...	...
Subiaco	1	...	2	...	4	11	6	...	4	...
Sussex	...	...	...	...	...	...	...	1	...	...
Swan	...	...	...	...	...	3	...	...	...	...
Three Springs	...	...	...	...	...	...	...	...	1	...
West Arthur	...	...	2	...	...	...	...	...	...	...
West Kimberley	...	...	...	...	...	...	...	...	...	...
Wickepin	...	...	...	...	...	1	...	...	...	...
Williams	...	...	...	...	...	1	...	...	...	...
Wiluna	...	...	...	...	...	...	...	...	...	...
York	...	...	1	...	...	2	...	...	...	...
	9	2	88	17	67	265	69	6	28	...
Services cases	...	...	...	1	2	78	...	...	...	...
Non-resident	...	...	...	...	3	...	...	...	...	...
	9	2	88	18	72	343	69	6	28	...

APPENDIX IX.

AGE and SEX DISTRIBUTION of CASES of PULMONARY TUBERCULOSIS NOTIFIED to DEPARTMENT of PUBLIC HEALTH for EACH MONTH OF THE YEAR ENDED 31st DECEMBER, 1946.

AGES IN YEARS

Month	0–1		1–2		2–3		3–4		4–5		5–6		6–7		7–8		8–9		9–10		10–14	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
January ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
February ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
March	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
April	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
May	...	...	...	1	2	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...
June	...	...	1	...	1	...	...	...	...	...	...	1	1	...	1	1	...	...	...	...	...	...
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
August ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
September ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
October ...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
November ...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	1	...	...	1	...	...	1	...
December ...	...	...	...	1	1	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	1
Totals ...	...	...	4	4	6	1	...	...	...	2	1	4	1	...	2	2	...	1	...	...	1	2

AGE IN YEARS-(Continued)

Month	15–19		20–24		25–29		30–34		35–39		40–44		45–49		50 & Over		Ages not Stated		M.	F.	Total
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
January ...	1	1	1	4	3	1	...	...	...	1	3	2	1	1	4	...	1	...	14	10	24
February ...	...	...	4	3	...	2	1	2	1	2	2	1	3	...	5	1	...	...	16	11	27
March	2	...	1	3	...	1	3	1	...	1	3	1	1	...	...	1	...	...	12	8	20
April	...	2	4	5	3	1	...	...	1	...	2	...	...	1	3	2	...	...	15	12	27
May	...	...	2	3	...	1	7	5	6	2	9	1	2	1	1	1	...	...	29	17	46
June	...	...	2	4	3	2	3	...	1	...	4	...	1	...	4	2	...	...	22	10	32
July	...	2	2	5	1	...	4	2	1	1	1	...	3	...	11	...	...	...	23	10	33
August	...	1	1	3	2	3	1	2	...	1	5	...	2	...	5	1	...	...	16	12	28
September ...	...	...	2	1	1	...	2	...	4	1	2	...	...	...	7	1	...	...	18	3	21
October ...	...	...	4	2	...	...	7	...	3	...	3	...	1	...	4	2	...	...	23	6	29
November ...	...	...	1	2	...	1	...	2	1	...	2	...	1	...	3	1	...	...	10	10	20
December ...	...	1	...	1	...	1	...	3	2	2	...	...	3	2	8	2	6	...	21	15	36
Totals ...	3	7	24	36	13	13	28	17	20	11	36	5	18	5	55	14	7	...	219	124	343

APPENDIX X.

ANALYSIS OF INFANT HEALTH CENTRE ATTENDANCES.

ANNUAL REPORT. 1st July, 1945, to 30th June, 1946.	Albany and Sub-Centres.	Bunbury.	†Beverley and Sub-Centres.	Boulder.	*Bridgetown and Sub-Centres.	†Dowerin and Sub-Centres.	Geraldton and Sub-Centres.	Kalgoorlie.	Katanning and Sub-Centres.	Merredin and Sub-Centres.	†Harvey and Sub-Centres.	Narrogin and Sub-Centres.	*Norseman.	Northam.	Manjimup and Pemberton.	Wiluna and Sub-Centres.	Bayswater-Maylands-Inglewood	Claremont and Sub-Centres.	Cottesloe and Sub-Centres.	E. Fremantle and Sub-Centres.	Fremantle.	Midland Junction-Bassendean-Guildford.	Nedlands and Sub-Centres.	North Perth-Mt. Hawthorn.	Stirling Street.	South Perth and Sub-Centres.	South Suburban.	Subiaco and Sub-Centres.	Wembley and Leederville.	Victoria Park.	Victoria Park East and Sub-Centres.	TOTAL.
Births Reported	192	152	....	162	....	....	115	351	190	115	....	164	....	184	119	18	356	228	230	325	319	335	198	488	603	253	133	320	449	201	214	6,414
New Babes Visited	168	328	....	163	....	....	214	325	130	154	....	142	....	201	156	2	154	266	219	276	312	257	194	311	562	250	66	338	390	139	196	5,913
Visitors—																																
(*a*) Under 4 Months	121	154	....	118	....	....	161	256	135	107	....	104	....	150	113	20	375	244	254	286	298	277	247	379	566	243	131	339	292	228	246	5,844
(*b*) Over 4 Months	8	30	....	....	....	....	....	....	12	....	....	19	....	24	16	12	41	....	26	14	27	20	....	36	73	26	10	....	12	17	18	441
New Babes attended other Clinics	10	49	....	20	....	....	45	24	27	19	....	10	....	22	7	8	27	61	40	6	25	74	8	56	73	35	13	46	26	23	25	779
Total individual Number of Babes attended centre	219	268	....	180	....	....	389	509	264	437	....	245	....	536	181	93	858	548	350	590	817	580	604	656	1,148	708	294	811	680	476	472	12,913
Total attendances Babes at Centre	2,104	2,619	....	1,994	....	....	3,617	4,514	2,126	1,290	....	1,672	....	2,984	1,866	984	7,987	5,992	4,922	8,457	7,502	4,581	6,321	6,966	7,899	6,379	3,134	6,345	7,168	4,886	6,074	120,383
Total Number Effective Visits to Houses	407	511	....	367	....	....	490	652	210	59	....	351	....	1,376	82	4	179	1,321	879	628	527	416	576	479	987	476	324	549	717	787	718	14,072
Total Consultations re Mothers—																																
(*a*) Expectant	21	36	....	22	....	....	42	61	25	20	....	26	....	58	7	....	40	135	24	47	109	71	104	28	61	41	32	107	16	68	17	1,218
(*b*) Other	21	15	....	35	....	....	19	64	25	10	....	16	....	1,621	2	....	185	305	333	489	10	116	534	324	41	61	495	411	116	441	20	5,709
Total Consultations	2,553	3,181	....	2,418	....	....	4,168	5,291	2,386	1,379	....	2,065	....	6,039	1,957	988	8,391	7,753	6,158	9,621	8,148	5,184	7,535	7,797	8,988	6,957	3,985	7,412	8,017	6,182	6,829	141,382
No. referred to Doctors or Hospitals—																																
(*a*) Mothers	5	7	....	....	....	....	7	34	24	3	....	3	....	80	7	1	19	146	27	201	11	7	12	6	20	8	9	37	32	25	12	743
(*b*) Babes	17	36	....	22	....	....	46	106	61	14	....	22	....	149	22	4	61	160	63	284	64	51	64	80	60	30	39	23	56	69	41	1,644
Re-est. of Lactn.—																																
(*a*) Entirely	6	19	....	2	....	....	11	60	18	5	....	4	....	23	12	1	2	21	17	16	....	....	7	3	18	17	3	7	8	....	4	284
(*b*) Partly	4	24	....	8	....	....	24	51	44	3	....	18	....	22	2	....	....	89	15	23	....	25	5	87	....	9	6	4	5	5	17	490
No. of Babes on Roll— Under 9 Months	86	152	....	109	....	....	176	166	186	378	....	59	....	188	80	59	525	246	283	376	285	311	269	374	598	487	129	529	360	249	187	6,847
(*a*) Breast Fed	26	75	....	40	....	....	101	67	48	153	....	22	....	114	34	33	341	147	106	165	163	164	202	194	357	327	44	339	199	116	98	3,675
(*b*) Comp. Feeding	35	22	....	19	....	....	21	22	49	60	....	12	....	16	14	5	....	6	50	32	24	92	25	60	77	28	12	105	15	29	22	852
No. such Babes artificially Fed—																																
(*a*) Fresh Milk	18	18	....	11	....	....	6	12	46	44	....	12	....	26	23	20	47	38	42	47	10	25	13	40	164	38	32	36	34	36	25	863
(*b*) Lactogen	4	31	....	35	....	....	44	41	43	100	....	10	....	32	9	1	121	53	85	107	75	28	27	80	....	69	36	33	93	65	38	1,260
(*c*) Other Types	3	6	....	4	....	....	4	24	....	21	....	3	....	....	....	....	16	2	....	25	13	2	2	....	....	25	5	16	19	3	4	197

* Figures not sent in. † Temporarily closed.

APPENDIX XI.
SCHOOL MEDICAL SERVICE.

EXAMINATION OF METROPOLITAN AND COUNTRY SCHOOL CHILDREN—1946.

	No. Examined.	No. Notified.	No. referred for Medical Attention.	No. for Home Attention or Observation.	No. requiring Dental Attention.	Recalls.	Pediculosis.	Skin Complaints.	Skin Complaints.	Nutrition.			Tonsils Medical Attention.	Eyes Medica. Attention.
									%	3.	Under 3.	Over 3.		
						METROPOLITAN SCHOOLS.								
Boys	6,621	5,397	2,213	2,633	3,491	370	....	....	....	5,251	1,258	112	....	....
Girls	6,981	5,298	2,055	2,727	3,394	745	....	....	....	5,296	1,354	331	....	....
Total	13,602	10,695	4,268	5,360	6,885	1,115	....	1,071	7·8	10,547	2,612	443	316	2,866
						COUNTRY SCHOOLS.								
Boys	3,858	2,144	458	1,125	842	....	....	....	....	2,221	1,201	436	....	....
Girls	3,841	2,054	487	1,055	883	....	....	....	....	2,160	451	1,230	....	....
Total	7,699	4,198	945	2,180	1,725	....	70	309	4·0	4,381	1,652	1,666	255	600
						STATE TOTALS.								
Boys	10,479	7,541	2,671	3,758	4,333	....	....	....	....	7,472	2,459	548	....	....
Girls	10,822	7,352	2,542	3,782	4,277	....	....	....	....	7,456	1,805	1,561	....	....
TOTAL	21,301	14,893	5,223	7,540	8,610	....	70	1,380	6·4	14,928	4,264	2,109	571	3,466

APPENDIX XII.
VITAL STATISTICS.

Western Australia.

——	1944.	1945.	1946.
Mean Population—			
Males	251,641	253,688	255,688
Females	232,894	236,115	238,654
Total	484,535	489,803	494,342
Births—			
Males	5,544	5,400	6,285
Females	5,326	5,272	5,820
Total	10,870	10,672	12,105
Birth Rate—			
Per thousand of Mean Population	22·43	21·79	24·49
Deaths—			
Males	2,664	2,782	2,791
Females	1,814	1,930	1,962
Total	4,478	4,712	4,753
Death Rate—			
Per thousand of Population	9·24	9·62	9·61
Natural Increase—			
Rate per thousand of Mean Population	13·19	12·17	10·46
*Infantile Mortality per thousand Births—			
Metropolitan Area	29·27	25·33	25·01
Rest of State	36·49	34·51	37·84
Whole State	32·57	29·52	31·06
Stillbirths—			
Metropolitan Area	155	131	175
Whole State	274	224	293

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* Excluding stillbirths.

BIRTH, DEATH, AND INFANT MORTALITY RATES AND NUMBER OF STILLBIRTHS, 1937–1946.

——	Birth Rate.	Death Rate.	Infant Mortality * (Under 1 year).			Stillbirths.	
			Whole State.	Metropolitan Area.	Rest of State.	Whole State.	Metropolitan Area.
1937	18·95	8·95	37·52	42·40	33·96	241	103
1938	19·87	9·20	33·80	29·76	36·76	224	103
1939	19·41	9·31	40·84	37·98	42·97	213	97
1940	19·37	9·53	44·18	47·15	42·03	242	120
1941	21·36	10·07	35·28	35·21	35·34	257	119
1942	20·70	10·61	36·86	37·52	36·22	208	107
1943	21·83	9·55	32·63	29·66	36·22	278	159
1944	22·43	9·24	32·57	29·27	36·49	274	155
1945	21·79	9·62	29·52	25·33	34·51	224	131
1946	24·50	9·62	31·06	25·01	37·84	293	175

* Exclusive of stillbirths.

Western Australia.

GOVERNMENT STATISTICIAN'S OFFICE.

Year.	Live Births.	Deaths from :							
		Puerperal Septicaemia		Abortion.		All other causes of the Puerperal State.		All causes of the Puerperal State.	
		No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.	No.	Rate per 1,000 Live Births.
1942	9,901	4	0·40	8	0·81	16	1·62	28	2·83
1943	10,481	3	0·29	3	0·29	17	1·62	23	2·19
1944	10,870	4	0·37	5	0·46	18	1·66	27	2·48
1945	10,672	2	0·19	5	0·47	13	1·22	20	1·87
1946	12,105	3	0·25	5	0·41	18	1·49	26	2·15

COMPARISON OF INFANT MORTALITY AND GENERAL DEATH RATE.

——	Infant Mortality.			General Death Rate.		
	1944.	1945.	1946.	1944.	1945.	1946.
New Zealand (*a*)	30·12	27·99	25·35	9·87	10·07	9·70
Western Australia	32·57	29·52	31·06	9·24	9·62	9·61
New South Wales	30·68	30·63	30·22	9·30	9·32	9·77
Victoria	31·96	28·03	27·16	10·28	10·19	10·60
Queensland	31·32	29·76	29·27	8·82	8·77	9·75
Tasmania	38·27	27·48	30·11	10·18	9·74	10·14
South Australia	29·07	28·08	27·07	9·63	9·62	10·15

(*a*) Non-Maori.

Western Australia.

GOVERNMENT STATISTICIAN'S OFFICE.

Year.	Cases notified.	Deaths.	Deaths per 1,000 of Population.	Percentage of Total Deaths.
TUBERCULOSIS OF RESPIRATORY SYSTEM.				
1937	239	172	0·38	4·23
1938	247	177	0·38	4·18
1939	202	179	0·38	4·13
1940	231	181	0·38	4·03
1941	154	185	0·39	3·88
1942	113	175	0·37	3·45
1943	273	144	0·30	3·14
1944	219	134	0·28	2·99
1945	271	149	0·30	3·16
1946	343	163	0·33	3·43
OTHER FORMS OF TUBERCULOSIS.				
1937	...	23	0·051	0·57
1938	...	12	0·026	0·28
1939	3	14	0·030	0·32
1940	...	15	0·032	0·33
1941	2	22	0·046	0·46
1942	17	17	0·036	0·33
1943	54	9	0·019	0·20
1944	7	15	0·031	0·33
1945	14	14	0·029	0·30
1946	69	7	0·014	0·15

INCIDENCE AND MORTALITY OF NOTIFIABLE INFECTIOUS DISEASES, 1946.

——	Cases Reported.	Deaths.
Undulant Fever	6	...
Malaria	1	...
Typhoid	19	3
Diphtheria	380	11
Scarlet Fever	88	...
Pulmonary T.B.	343	163 (*a*)
Other T.B.	69	7
Typhus	72	1
Puerperal Fever	8	3 (*b*)
Leprosy	27	1
Dysentery	118	2
Poliomyelitis	2	...
Cerebro-spinal Meningitis	37	11
Lethargic Encephalitis	1	1

(*a*) Tuberculosis of respiratory system. (*b*) Puerperal Embolism.

APPENDIX XIII.

FINANCIAL.

Statement of Revenue and Expenditure.

Revenue.

	Calendar Year. 1945.			Calendar Year. 1946.		
	£	s.	d.	£	s.	d.
License Fees	103	18	0	71	0	0
Meat Inspection Fees	7,744	17	4	7,912	4	9
"Village Area" Sanitary Contracts	76	7	4	44	4	8
Pathological Laboratory	1,047	2	0	1,266	10	6
Sanitation Refunds	127	0	8	129	18	7
Inspection of Plans (Septic Tanks)	459	2	2	915	0	0
Miscellaneous	679	0	6	340	19	10
Nurses and Midwives' Registration and Examination Fees	446	10	7	420	5	6
Local Health Authorities' Recoups	826	17	1	1,011	14	5
	£11,510	15	8	£12,111	18	3

Expenditure.

	Calendar Year. 1945.			Calendar Year. 1946.		
	£	s.	d.	£	s.	d.
Salaries	20,714	8	1	24,363	4	10
"Village Area" Sanitation	37	8	9	2	9	8
Payment, Local Health Authorities	3,601	10	7	2,553	9	1
School Hygiene	833	7	8	313	1	4
Travelling and Transport	632	8	5	1,364	10	11
Postages and Telephones	493	12	6	426	4	6
Laboratory	250	2	4	279	7	7
Venereal Diseases	354	3	7	3,796	19	5
Miscellaneous	1,847	16	5	698	17	6
Infant Welfare Centre	4,077	8	5	4,645	12	8
Maintenance and Transport of Lepers	7,550	5	11	8,514	18	11
Medical Officer and School Dentist—Travelling Allowances	572	0	8	713	15	10
Diphtheria Immunisation	601	1	5	607	12	10
T.B. Clinics	...			1,817	5	1
	41,565	14	9			
Sanitation of Government Buildings	9,742	6	9	9,804	13	1
	51,308	1	6	59,902	3	3
Less Commonwealth Grant for Venereal Diseases	...			4,000	0	0
				£55,902	3	3

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